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Please Bring This Bulletin With You
When You Come to Register

COLLEGE BULLETINS, Published by the Utah State
Vol. 45, No. 5, May 1945. Entered as second class matter
September 10, 1918, at the post office at Logan, Utah,
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ing at special rate of postage provided in Section 1103,
### 1945

<table>
<thead>
<tr>
<th>JANUARY</th>
<th>APRIL</th>
<th>JULY</th>
<th>OCTOBER</th>
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</thead>
<tbody>
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<thead>
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<th>JANUARY</th>
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<td></td>
</tr>
</tbody>
</table>

1945

1946
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Calendar, 1944-45</td>
<td>5</td>
</tr>
<tr>
<td>Administration</td>
<td>8</td>
</tr>
<tr>
<td>Board of Trustees</td>
<td>8</td>
</tr>
<tr>
<td>Officers of Administration</td>
<td>8</td>
</tr>
<tr>
<td>Faculty Committee</td>
<td>9</td>
</tr>
<tr>
<td>Emeritus Faculty</td>
<td>9</td>
</tr>
<tr>
<td>Faculty</td>
<td>10</td>
</tr>
<tr>
<td>Introduction</td>
<td>29</td>
</tr>
<tr>
<td>Student Organizations</td>
<td>37</td>
</tr>
<tr>
<td>Alumni Association</td>
<td>38</td>
</tr>
<tr>
<td>Academic Regulations</td>
<td>39</td>
</tr>
<tr>
<td>Admission</td>
<td>39</td>
</tr>
<tr>
<td>Graduation</td>
<td>45</td>
</tr>
<tr>
<td>Student Expenses</td>
<td>48</td>
</tr>
<tr>
<td>Scholarships and Awards</td>
<td>51</td>
</tr>
<tr>
<td>School of Agriculture</td>
<td>57</td>
</tr>
<tr>
<td>Agriculture</td>
<td>62</td>
</tr>
<tr>
<td>Agricultural Economics and Marketing</td>
<td>63</td>
</tr>
<tr>
<td>Agronomy and Soils</td>
<td>65</td>
</tr>
<tr>
<td>Animal Husbandry</td>
<td>67</td>
</tr>
<tr>
<td>Bacteriology and Biochemistry</td>
<td>69</td>
</tr>
<tr>
<td>Botany and Plant Pathology</td>
<td>71</td>
</tr>
<tr>
<td>Dairy Husbandry and Manufacturing</td>
<td>73</td>
</tr>
<tr>
<td>Horticulture</td>
<td>74</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>76</td>
</tr>
<tr>
<td>Poultry Husbandry</td>
<td>77</td>
</tr>
<tr>
<td>Vegetable Crops</td>
<td>78</td>
</tr>
<tr>
<td>Veterinary Science</td>
<td>79</td>
</tr>
<tr>
<td>School of Arts and Sciences</td>
<td>81</td>
</tr>
<tr>
<td>Bacteriology and Biochemistry</td>
<td>84</td>
</tr>
<tr>
<td>Botany and Plant Pathology</td>
<td>84</td>
</tr>
<tr>
<td>Chemistry</td>
<td>85</td>
</tr>
<tr>
<td>English</td>
<td>88</td>
</tr>
<tr>
<td>Journalism</td>
<td>92</td>
</tr>
<tr>
<td>Geology</td>
<td>93</td>
</tr>
<tr>
<td>History</td>
<td>94</td>
</tr>
<tr>
<td>Mathematics</td>
<td>96</td>
</tr>
<tr>
<td>Modern Languages and Latin</td>
<td>97</td>
</tr>
<tr>
<td>Physics</td>
<td>100</td>
</tr>
<tr>
<td>Physiology, Public Health and Hygiene</td>
<td>102</td>
</tr>
<tr>
<td>Speech</td>
<td>104</td>
</tr>
<tr>
<td>Zoology and Entomology</td>
<td>107</td>
</tr>
<tr>
<td>School of Commerce</td>
<td>111</td>
</tr>
<tr>
<td>Agricultural Economics and Marketing</td>
<td>113</td>
</tr>
<tr>
<td>Business Administration</td>
<td>115</td>
</tr>
<tr>
<td>Accounting</td>
<td>117</td>
</tr>
<tr>
<td>Business Administration</td>
<td>118</td>
</tr>
<tr>
<td>Merchandising</td>
<td>119</td>
</tr>
<tr>
<td>Economics</td>
<td>120</td>
</tr>
<tr>
<td>Political Science</td>
<td>123</td>
</tr>
<tr>
<td>Secretarial Science</td>
<td>125</td>
</tr>
</tbody>
</table>
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociology</td>
<td>128</td>
</tr>
<tr>
<td>Social Work</td>
<td>130</td>
</tr>
<tr>
<td>School of Education</td>
<td></td>
</tr>
<tr>
<td>Art</td>
<td>133</td>
</tr>
<tr>
<td>Education</td>
<td>135</td>
</tr>
<tr>
<td>Elementary Education</td>
<td>138</td>
</tr>
<tr>
<td>Secondary Education</td>
<td>140</td>
</tr>
<tr>
<td>Vocational Education</td>
<td>142</td>
</tr>
<tr>
<td>Administration and Supervision</td>
<td>143</td>
</tr>
<tr>
<td>Library Science</td>
<td>143</td>
</tr>
<tr>
<td>Graduate Work</td>
<td>144</td>
</tr>
<tr>
<td>Music</td>
<td>145</td>
</tr>
<tr>
<td>Physical Education</td>
<td>149</td>
</tr>
<tr>
<td>Psychology</td>
<td>155</td>
</tr>
<tr>
<td>School of Engineering, Industries and Trades</td>
<td></td>
</tr>
<tr>
<td>Engineering Division</td>
<td>157</td>
</tr>
<tr>
<td>Agricultural Engineering</td>
<td>159</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>160</td>
</tr>
<tr>
<td>Industrial Division</td>
<td>162</td>
</tr>
<tr>
<td>Vocational Industrial Program</td>
<td>168</td>
</tr>
<tr>
<td>Technical Institute Program</td>
<td>169</td>
</tr>
<tr>
<td>Industrial Education</td>
<td>171</td>
</tr>
<tr>
<td>Aeronautics</td>
<td>171</td>
</tr>
<tr>
<td>Automotive</td>
<td>174</td>
</tr>
<tr>
<td>Metalwork and Mechanical Drawing</td>
<td>179</td>
</tr>
<tr>
<td>Radio</td>
<td>181</td>
</tr>
<tr>
<td>Woodwork and Building Construction</td>
<td>184</td>
</tr>
<tr>
<td>Industrial Education Program</td>
<td>186</td>
</tr>
<tr>
<td>Industrial Arts</td>
<td>187</td>
</tr>
<tr>
<td>School of Forest, Range and Wildlife Management</td>
<td></td>
</tr>
<tr>
<td>Forest Management</td>
<td>191</td>
</tr>
<tr>
<td>Range Management</td>
<td>194</td>
</tr>
<tr>
<td>Wildlife Management</td>
<td>195</td>
</tr>
<tr>
<td>School of Home Economics</td>
<td>200</td>
</tr>
<tr>
<td>Curricula in Home Economics</td>
<td>203</td>
</tr>
<tr>
<td>Child Development and Parental Education</td>
<td>204</td>
</tr>
<tr>
<td>Clothing, Textiles and Related Arts</td>
<td>216</td>
</tr>
<tr>
<td>Foods and Nutrition</td>
<td>217</td>
</tr>
<tr>
<td>Household Administration</td>
<td>219</td>
</tr>
<tr>
<td>School of Military Science and Tactics</td>
<td></td>
</tr>
<tr>
<td>Graduate School</td>
<td>223</td>
</tr>
<tr>
<td>Research and Extension</td>
<td>229</td>
</tr>
<tr>
<td>Agricultural Experiment Station</td>
<td>235</td>
</tr>
<tr>
<td>Engineering Experiment Station</td>
<td>236</td>
</tr>
<tr>
<td>Extension Service</td>
<td>237</td>
</tr>
<tr>
<td>Summer Session</td>
<td>238</td>
</tr>
<tr>
<td>Correspondence Study</td>
<td>239</td>
</tr>
<tr>
<td>Branch Agricultural College</td>
<td>239</td>
</tr>
<tr>
<td>Fifty-second Annual Commencement</td>
<td>240</td>
</tr>
<tr>
<td>Summary of Attendance</td>
<td>241</td>
</tr>
<tr>
<td>Index</td>
<td>243</td>
</tr>
</tbody>
</table>
COLLEGE CALENDAR FOR THE SCHOOL YEAR 1945-1946

FALL QUARTER

September 17, Monday .......... First Faculty Meeting.
September 24, Monday .......... Registration.
September 25, Tuesday .......... Instruction begins.
October 12, Friday ............ Last day for adding classes.
October 22, Monday .......... Prospective graduates submit applications for candidacy.
November 9, Friday ............ Last day for withdrawal from classes.
November 22-23, Thurs., Fri .... Thanksgiving recess.
December 19, Wednesday .......... Fall Quarter ends.

WINTER QUARTER

January 2, Wednesday .......... Registration. Candidates submit applications for graduation.
January 3, Thursday .......... Instruction begins.
January 18, Friday .......... Last day for adding classes.
February 15, Friday .......... Last day for withdrawal from classes.
March 8, Friday .......... Founders’ Day.
March 22, Friday .......... Winter quarter ends.

SPRING QUARTER

March 25, Monday .......... Registration.
March 26, Tuesday .......... Instruction begins.
April 12, Friday ............ Last day for adding classes.
May 8, Wednesday .......... Last day for withdrawal from classes.
June 7, Friday .......... Spring Quarter ends.
June 8, Saturday .......... Commencement.
June 9, Sunday .......... Baccalaureate Service.

SUMMER SESSION 1946

June 10, Monday .......... Summer Session begins.
July 19, Friday .......... Summer Session closes.
July 22, Monday .......... Intersession begins.
August 16, Friday .......... Intersession closes.
ADMINISTRATION

Board of Trustees

C. G. Adney ......................................................... Corinne
Hyrum M. Blackhurst .............................................. Salt Lake City
James S. Prestwich ................................................ Cedar City
Charles Redd ....................................................... La Sal
E. H. Street ......................................................... Richfield
Ray E. Dillman ...................................................... Roosevelt
Henry Peterson .................................................... Logan
Thorpe B. Isaacson ............................................... Salt Lake City
W. W. Merrill ...................................................... Logan
L. C. Montgomery .................................................... Heber City
Merrill N. Warnick ................................................ Pleasant Grove
A. W. Chambers ..................................................... Smithfield
E. E. Monson, Secretary of State (ex officio) .................. Salt Lake City
A. Russell Croft, President of Alumni (ex-officio) .............. Ogden
Russell E. Berntson, Secretary-Treasurer ......................... Logan

Officers of Administration

Harris, Franklin S. .................................................. President
Owens, W. W. ......................................................... Director, Extension Service
Walker, R. H. ......................................................... Director, Agricultural Experiment Station and Dean, School of Agriculture
Driggs, H. Wayne .................................................. Director, Branch Agricultural College

Wanlass, W. L. ..................................................... Dean, School of Commerce
Jacobson, Ernest A. ................................................ Dean, School of Education
*Clyde, George Dewey ............................................. Dean, School of Engineering
Turner, Lewis M. .................................................... Dean, School of Forestry and Range
Richards, B. L. ....................................................... Dean, Graduate School
Culmsee, Carlton .................................................... Dean, School of Arts and Sciences
Greaves, Ethelyn O. ................................................ Dean, School of Home Economics
Merrill, Milton R. ................................................... Dean, Summer Session
Chase, Daryl ......................................................... Dean of Students
Hendricks, Caroline McAllister .................................. Dean of Women
Berntson, Russell E. ............................................... Executive Secretary and Treasurer
Erickson, Sylvan .................................................... Assistant Secretary and Treasurer
Johnson, Eric A. .................................................... Purchasing Agent and Manager of Bookstore
Bell, William H. ..................................................... Registrar
*Davies, David W. .................................................. Librarian
Blair, Ben B., Lt. Col. ............................................... Commandant, R.O.T.C.
Pocock, C. Lester ................................................... Chairman, Public Relations
Goodwin, William J. ................................................ Superintendent of Buildings and Grounds
Carlson, Vera ......................................................... Secretary to the President

The Deans' council consists of the President, all Deans and the Directors of divisions.

*On leave.
Faculty Committees

The President of the College is ex officio a member of each standing committee.

Assemblies—The President, Dean of Students, Professors Fogelberg, Christiansen, Myers.

Athletic Council—Professors King Hendricks, Romney, Payne, Alder, Caine, H. B. Hunsaker, Mr. Berntson.

Attendance and Scholarship—Professors Hammond, A. J. Morris, Tingey, Ricks, West, Bell.

Awards and Honors—Professors Ricks, Geddes, Milligan, Skeels, W. P. Thomas, Blanch, Kelker.

Credits and Admissions—Professors H. B. Peterson, Egbert, Bell, Wilcox.

Curriculum—Academic Deans, Registrar, Catalog Editor.

Debating—Professors Vickers, F. D. Daines, Murray, Hayward.

Graduation—Professors Cutler, Bird, Bell, Vermillion, Symons, Thorne, H. S. Carter, Kelker.

High School Relations—Professors Jacobsen, Phillips, Wrigley, Mr. Pocock.

Housing—Mr. Pocock, Professor Rice, Dean of Women.

Library—Academic Deans, Director Owens, Librarian.

Loan Fund—Mr. Berntson.

Lyceum—Professors Fogelberg, Christiansen, Mr. Berntson.

Personnel and Guidance—Dean of Students, Dean of Women, Dean Jacobsen, Professor Frandsen.

Pre-Medical and Pre-Dental Work ( ) Professor Culmsee.

Publications Council—Professors King Hendricks, Pedersen, Turner, Reynolds.

Registration—The Academic Deans, Professors Hayward, Bell, Jeppsen, H. B. Hunsaker.

Schedule—Professor Kepner.

Social Affairs Committee—Dean of Students, Dean of Women, Professors H. B. Hunsaker, V. D. Gardner, M. L. Nielsen, Holmgren, Yocom, Miss Carlson, Miss Richards.

Student Body Organization—Dean of Students, Dean of Women, Professors V. D. Gardner, King Hendricks.

Teacher Placement—Professors Jacobsen, Humpherys, Carlisle, Phillips.

Emeritus Faculty

Peterson, Elmer George, B.S., A.M., Ph.D., LL.D.……President Emeritus

(Listed in order of seniority of appointment.)

Peterson, William, B.S.……………….Director Emeritus, Extension Service

Arnold, Frank Russell, A.B., M.A.……Professor Emeritus of Modern Languages

Frederick, Hyrum John, D.V.M.……Professor Emeritus of Veterinary Science

Newey, Aaron, B.S.……………….Professor Emeritus of Metal Work

Pedersen, N. Alvin, A.B., M.A., Ph.D.……Professor Emeritus of English

Kyle, Charlotte, A. B., A.M.……Assistant Professor Emeritus of English

Jensen, George C., A.B., M.A.……Professor Emeritus of Modern Languages

Peterson, Parley E., A.B., C.P.A.……Professor Emeritus of Accounting

Moen, Johanna, B.S.……Professor Emeritus of Textiles and Clothing

Dancy, Charlotte E., R.N.……Assistant Professor Emeritus of Physiology

Peterson, Henry, A.B., A.M.……Professor Emeritus of Psychology

McClellan, Charles E., A.B., M.A.……Professor Emeritus of Education

Brown, Almeda P., B.S., M.A.……Professor Emeritus of Home Economics

Sorensen, Alma Nicholas, A.B., A.M.……Professor Emeritus of English
LOCATION OF BUILDINGS AND OFFICES

1. Main Building
   Offices: Secretary-Treasurer, Public Relations, Dean, Experiment Station, Registrar, Arts & Sciences, Education, Commerce.

2. Home Economics Building
   Foods, Textiles, Physiology, Cafeteria, Student Center.

3. Engineering Building
   Engineering, Surveying, Hydraulics, Mechanical.

4. Widtsoe Building
   Chemistry.

5. Animal Science
   Dairy, Poultry Husbandry, Veterinary Science.

6. Plant Industry Building
   Botany, Agronomy & Soils, Bacteriology & Biochemistry.

7. Library
   English, History.

8. Women's Residence Hall

9. Smart Gymnasium
   Physical Education for Men and Women.

10. President's Home

11. Extension Service Offices

12. Mechanic Arts Building
   Woodwork, Aviation, Radio, Machine Work, Farm Machinery.

13. L. D. S. Institute

14. Forestry Building
   Forestry, Range Management, Wildlife Management.

15. Stock Judging Pavilion

16. Green Houses
   College and Experimental.

17. Dairy Barn

18. Veterinary Science Laboratory

19. Poultry Buildings

20. Horse Barn

21. Home Economics Practice Cottage

22. Amphitheater

23. Stadium House

24. Stadium

25. Hog Barn

26. Sheep Barn

27. Heating Plant

28. Testing Laboratory

29. Quadrangle

30. Tennis Courts

31. U. S. F. S. Equipment Shed

32. U. S. A. C. Forest Nursery

33. Rural Arts Building

34. Field House

35. Military Science Building
Faculty
(Including Agricultural Experiment Station, Extension Service, and Branch Agricultural College)

Harris, Franklin S., B.S., Ph.D., LL.D.,
President

Alder, Byron, B.S.,
Professor of Poultry Husbandry and Extension Poultryman

Allen, Bert C.,
Instructor in Aeronautics

Bailey, Reed W., B.S., M.S.,
Director (Intermountain Forest and Range Experiment Station)
Non-Resident Professor of Forestry

Bates, George S., B.S., M.A.,
Registrar, Associate Professor

Bell, William H., B.S., M.S.,
Registrar, Associate Professor

Bensend, Dwight W., B.S., Ph.D.,
Associate Professor of Forestry

Berntson, Russell E.,
Executive Secretary and Treasurer

*Binns, Wayne, B.S., D.V.M.,
Assistant Professor of Veterinary Science

Bird, Marion T., B.S., A.M., Ph.D.,
Associate Professor of Mathematics

Blair, Ben B., Lt. Col., C.A.C.,
Professor of Military Science and Tactics

Blanch, George T., B.S., M.S., Ph.D.,
Associate Professor of Agricultural Economics

Blood, H. Lorant, B.S., M.S., Ph.D.,
Professor of Plant Pathology, Plant Pathologist U.S.D.A.

Bowen, Edith, B.S., M.A.,
Assistant Professor of Education
Supervisor of Elementary Teacher Training

Boyle, W. Sydney, B.A., Ph.D.,
Assistant Professor of Botany

Brehm, Lillian, B.S., M.A.,
Instructor in Textiles and Clothing

Brite, John Duncan, B.A., A.M., Ph.D.,
Associate Professor of History

Broadbent, Dee A., B.S., M.S.,
Assistant Professor of Agricultural Economics and
Extension Economist

Bullen, Asa., B.S., LL.B.,
Lecturer in Commercial Law

Burns, Ann, RN.,
College Nurse

Burton, Theodore M., A.B., M.A.,
Assistant Professor of Chemistry

*On leave.
Caine, George Ballif, B.S., M.A.,
  Professor of Dairy Husbandry and Extension Dairyman

*Calvert, Ralph L., B.A., M.A.,
  Assistant Professor of Mathematics

*Carlisle, John Crandall, B.S., M.S., Ed.D.,
  Professor of Education

Carlson, Vera,
  Secretary to the President

Carter, Harold S., B.S., M.S., C.E.,
  Professor of Civil Engineering

Chase, Daryl, B.A., M.A., Ph.D.,
  Dean of Students
  Director of Student Personnel with rank of Professor

Carter, Pearl J., B.S.,
  Assistant Librarian

Christensen, John V., B.S., M.S.,
  Assistant Professor of Animal Husbandry

Christiansen, N. Woodruff, B.S., M.A.,
  Professor of Instrumental Music

*Clark, Clayton, B.S.,
  Instructor in Radio

Cliff, Nellie, B.S.,
  Assistant Librarian

*Clyde, George Dewey, B.S., M.S.,
  Professor of Engineering and Dean, School of Engineering

Coe, Francis M., B.S., M.S.,
  Associate Professor of Horticulture

Cole, Larry S., B.S., M.S.,
  Assistant Professor of Radio

Coulam, Joseph, B.S.,
  Assistant Professor of Woodwork and Building Construction

*Croft, Jack, B.S.,
  Dean of Men

Culmsee, Carlton, A.B., M.A., Ph.D.,
  Professor of Journalism
  Dean, School of Arts and Sciences

Cutler, Harold Harris, B.S., M.S.,
  Associate Professor of Agricultural Economics

Daines, Franklin D., A.B., M.A., Ph.D.,
  Professor of Political Science

Daines, Spencer H., B.S.,
  Instructor in Agricultural Engineering

Daniel, T. W., B.S., M.S., Ph.D.,
  Professor of Silviculture

*Davies, David W., B.A., M.A., Certificate in Librarianship,
  Librarian, Assistant Professor

Doty, Ina, B.S., M.S.,
  Assistant Professor of Secretarial Science

*On leave.
Draper, Carroll L., B.S., Ph.D.,
Associate Professor of Poultry Husbandry and Extension Poultryman

Driggs, H. Wayne, B.A., M.A., Ph.D.,
Director, Branch Agricultural College

Egbert, S. R., B.S.,
Assistant Professor of Automotive Mechanics

Engstrom, Clarice, B.S., M.S.,
Assistant Professor of Textiles and Clothing

Erickson, Sylvan, B.S.,
Assistant Secretary and Treasurer

Esplin, Alma C., B.S., M.S.,
Professor of Animal Husbandry and Extension Animal Husbandman

Evans, Robert J., B.S., Ph.D.,
Professor of Agronomy

Fletcher, Calvin, B.Pd.,
Professor of Art

Floyd, J. Whitney, B.S., M.S.,
Professor of Forestry and Extension Forester

Fogelberg, Thelma, B.S., M.A., Ph.D.,
Assistant Professor of Modern Languages

*France, Leroy, B.S.,
Instructor in Automotive Mechanics

Frandsen, Arden, B.S., M.S., Ph.D.,
Professor of Psychology

*Frischknecht, Carl, B.S., M.S.,
Associate Professor of Poultry Husbandry and Extension Poultryman

*Fuhriman, Dean K., B.S.,
Instructor of Civil Engineering

Gardner, Vernal Delroy, B.S., M.B.A.,
Professor of Accounting and Business Administration

Gardner, Willard, B.S., M.S., Ph.D.,
Professor of Physics

Geddes, Joseph Arch, A.B., A.M., Ph.D.,
Professor of Sociology
Director, Division of Social Work

Gilbert, Alexander, M.E.,
Assistant Professor of Aeronautics

Goodwin, William J., B. S.,
Superintendent of Buildings and Grounds

Greaves, Ethelyn O., B.S., M.S., Ph.D.,
Professor of Foods and Dietetics
Dean, School of Home Economics

*Greaves, Halbert, A.B., M.S., Ph.D.,
Assistant Professor of Speech

Greaves, Joseph E., B.S., M.S., Ph.D.,
Professor of Bacteriology and Biochemistry

Gunderson, Howard B., B.S., M.A.,
Non-Resident Professor of Trade and Industrial Education

*On leave.
FACULTY

*Hadley, John M., A.B., M.S., Ph.D.,
   Assistant Professor of Psychology and Speech
Hammond, Datus M., B.S., M.A., Ph.D.,
   Professor of Zoology and Entomology
Harris, Lorin E., B.S., M.S., Ph.D.,
   Associate Professor of Animal Husbandry
*Hart, Philip J., B.S., Ph.D.,
   Assistant Professor of Physics
Hatch, LaPreal S.,
   Assistant Librarian
Hayward, Ira N., B.S., Ph.M.,
   Assistant Professor of English
Hendricks, Caroline McAllister, B.S., M.S.,
   Dean of Women, Associate Professor,
   Supervisor, Women's Residence Halls
Hendricks, King, B.S., M.A., Ph.D.,
   Professor of English and Acting Librarian
*Henriques, Margaret S., A.B., M.A., C.L.,
   Assistant Librarian
Hess, Alvin, B.S., M.S.,
   Collaborator in Teacher Training
Hill, Reuben L., B.S., Ph.D.,
   Professor of Chemistry
Hodges, Evelyn, B.S., M.S.,
   Assistant Professor of Social Work
Holmgren, Arthur H., B.S., M.S.,
   Assistant Professor of Botany
   Curator, Intermountain Herbarium
Humpherys, LeGrande R., B.S.,
   Professor of Agricultural Education
Hunsaker, H. B., B.S., M.S.,
   Professor of Physical Education
Hunsaker, Neville C., B.A., M.A.,
   Assistant Professor of Mathematics
Israelsen, Orson W., B.S., M.S., Ph.D.,
   Professor of Irrigation and Drainage
Jacobsen, Ernest A., A.B., M.A., Ed.D.,
   Professor of Education
   Dean, School of Education
Jennings, David Stout, B.S., Ph.D.,
   Professor of Soils
Jensen, J. O., B.S.,
   Instructor in Physics
Jeppsen, Ernest C., B.S., M.S.,
   Associate Professor of Automotive Mechanics
Johnson, Bertha F., B.S., M.A.,
   Associate Professor of Textiles and Clothing
Johnson, Eric A., B.S.,
   Purchasing Agent and Manager of Bookstore

*On leave.
Jones, Lewis W., B.S., M.S.,
Assistant Professor of Bacteriology and Biochemistry

Kelker, George Hills, A.B., B.S.F., M.S.F.,
Associate Professor of Wildlife Management

Kepner, Harold R., A.B., S.B., S.M.,
Professor of Civil Engineering

Kilburn, Parley, B.S., M.S.,
Alumni Secretary
Instructor in Psychology

Knowlton, George F., B.S., M.S., Ph.D.,
Professor of Entomology and Extension Entomologist

Larsen, Jessie, B.S.,
Assistant Professor of Art

*Lee, H. B., B.S., M.S.,
Basketball Coach

Lewis, Arthur, B.A., M.S.,
Assistant Professor of Psychology

*Linford, Leon B., B.S., M.A., Ph.D.,
Professor of Physics

J. B. Low, B.S., M.S., Ph.D.,
Associate Professor of Wildlife Management

Madsen, Louis L., B.S., Ph.D.,
Professor of Animal Husbandry

*Madsen, Milton A., B.S., M.S.,
Instructor in Animal Husbandry

Maeser, Sherwin, A.B., Ph.D.,
Professor of Chemistry

Maguire, Bassett, B.S., Ph.D.,
Curator of New York Botanical Garden
Non-Resident Professor of Botany

Manning, W. H., A.B.,
Associate Professor of Vocal Music

Merrill, Ann, B.S.,
Assistant Librarian

Merrill, Milton R., B.S., M.A.,
Professor of Political Science
Dean, Summer Session

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Professor of Modern Languages

Milligan, Cleve H., B.S., M.S.,
Associate Professor of Agricultural Engineering

Moore, Charles A., M/Sgt.,
Instructor in Military Science

*Morgan, Floyd Thomas, B.S., M.A.,
Assistant Professor of Speech

Morrell, Katherine Ebert, B.S., M.S.,
Assistant Professor of Foods
Assistant Manager of Cafeteria

Morris, Arthur J., B.S., M.S.,
Professor of Dairy Manufacturing and Extension Dairy Manufacturing Specialist

*On leave.
Morris, Laval S., B.S., M.S., M.L.A.,  
Associate Professor of Landscape Architecture and  
Extension Landscape Architect

Mortimer, Wm., B.S., M.S.,  
Assistant Professor of Industrial Education

Moser, Faye, B.S., M.S.,  
Instructor in Physiology

Murray, Evan B., B.S., M.S.,  
Associate Professor of Economics

Myers, Chester J., B.S., A.M., Ph.D.,  
Professor of Speech

Neilsen, Harold M., B.S., M.S.,  
Assistant Professor of Veterinary Science

Nelson, George,  
Trainer and Wrestling Coach

*Neuberger, L. Mark, B.S., M.S.,  
Assistant Professor of Accounting and Business Administration

*Nielsen, William Durrell, B. S.,  
Assistant in Public Relations Department

Nielsen, Marion L., B.S., M.A., Ph.D.,  
Assistant Professor of Languages

Noble, Legrande, B.S., M.S., Ed.D.,  
Director of Extension Class Work,  
Correspondence and Visual Education  
Assistant Professor of Education

Owens, W. W., B.S., M.A.,  
Director of Extension Service

Page, Edna, B.S., M.A.,  
Assistant Professor of Foods

Payne, Edward W., B.S.,  
Assistant Professor of Physics

Peterson, Howard B., B.A., M.A., Ph.D.,  
Assistant Professor of Soils

Phillips, W. Virginia, B.Ed., M.A.,  
Associate Professor of Home Economics Education

Pittman, Don W., B.S., M.S.,  
Professor of Soils

Pocock, C. Lester, B.S.,  
Chairman of Public Relations

Pollard, Leonard H., B.S., M.S., Ph.D.,  
Associate Professor of Vegetable Crops

Preator, Frederick, B.S.,  
Associate Professor of Metalwork

Preston, William Bowker, M.D.,  
Health Supervisor of Students  
Professor of Physiology

*On leave.
Pugmire, Oral, B.S.,
Instructor in Child Development

Reynolds, H. Reuben, Graduate of Chicago Art Institute,
Associate Professor of Art

Rice, Moyle Q., B.S., M.A.,
Assistant Professor of English

Rich, Edith, B.S., B.S. in L.S.,
Associate Librarian

Richards, Bert Lorin, B.S., M.S., Ph.D.,
Professor of Botany and Plant Pathology
Dean, Graduate School

Richards, Ruth, B.S.,
Instructor in Secretarial Science

Richardson, Reed C., B.S., S/Sgt.,
Instructor in Military Science

Ricks, Joel Edward, A.B., A.M., Ph.D.,
Professor of History

Romney, E. L., A.B.,
Professor of Physical Education
Director of Athletics
Head Football Coach

Scholes, William, B.S., M.S.,
Instructor in Physiology

Senob, Alice, A.B., A.M., Ph.D.,
Assistant Professor of English

Skeels, Esther L., B.A., M.A.,
Associate Professor of Child Development and Parental Education

*Skidmore, Rex A., A.B., M.A., Ph.D.,
Assistant Professor of Sociology

*Smith, Arthur D., B.S., M.S.,
Assistant Professor of Range Management

Sorenson, Charles J., B.S., M.S.,
Associate Professor of Zoology and Entomology

Stanford, J. Sedley, B.S., Ph.D.,
Associate Professor of Zoology and Entomology

Starr, Fern, B.S.,
Instructor in Foods and Nutrition

Stevens, Kenneth R., B.S., M.S., Ph.D.,
Associate Professor of Bacteriology and Biochemistry

Stewart, George, Ph.D.,
Senior Ecologist (Intermountain Forest and Range Experiment Station), Non-Resident Professor of Range Management and Agronomy

*Stock, Eldon M., B.S., M.S.,
Assistant Professor of Civil Engineering

*On leave.
*Stock, S. R., B.S.,
Associate Professor of Radio

Stoddart, Laurence A., B.S., M.S., Ph.D.,
Professor of Range Management

Swenson, D. A., B.S.,
Associate Professor of Woodwork and Building Construction

*Swinyard, Alfred W., B.S., M.B.A.,
Instructor in Business Administration

Symons, Joseph N., B.S., M.S., Ph.D.,
Associate Professor of Sociology

Thomas, Mildred, B.S., M.A.,
Instructor in Physical Education

Thomas, W. Preston, B.S., M.S., Ph.D.,
Professor of Agricultural Economic and Extension Economist

Thorne, D. Wynne, B.S., M.S., Ph.D.,
Associate Professor of Soils

Thorpe, Everett, B.S.,
Instructor in Art

Tingey, D. C., B.S., M.A.,
Associate Professor of Agronomy

Tingey, V. H., B.S., M.S.,
Professor of Mathematics

Turner, Lewis M., B.S., M.S., Ph.D.,
Professor of Forestry
Dean, School of Forest, Range and Wildlife Management

*Vanderhoff, Kenneth, B.S.,
Assistant Coach and Instructor in Physical Education

Vermillion, Una, A.B., M.A.,
Associate Professor of Institutional Management and Manager of Cafeteria

Vickers, Wallace J., B.S., M.A., Ph.D.,
Professor of English

Walker, R. H., B.S., M.S., Ph.D.,
Professor of Agriculture
Director of Experiment Station
Dean, School of Agriculture

Wanlass, W. L., A.B., A.M., Ph.D.,
Professor of Economics
Dean, School of Commerce

Wann, F. B., A.B., Ph.D.,
Associate Professor of Botany

*Welti, Walter, B.A., M.A.,
Associate Professor of Vocal Music

West, Clara Pearson, A.B., M.S.,
Assistant Professor of Secretarial Science

*Whitesides, Joe E., B.S.,
Freshman Coach and Instructor in Physical Education

Wilcox, Ethelwyn B., B.S., M.S., Ph.D.,
Associate Professor of Nutrition

On leave.

(1)
Williams, J. Stewart, B.S., M.A., Ph.D.,
Professor of Geology

Wright, Stillman, B.S., Ph.D.,
Associate Aquatic Biologist, U. S. Fish and Wildlife Service,
Associate in Wildlife Management

Yocom, Rachel, B.A., M.A.,
Associate Professor of Physical Education

Young, Delbert, B.S.,
Assistant Professor of Physical Education
Assistant Coach
Track and Field Coach

ELEMENTARY TRAINING SCHOOL STAFF
(With rank of instructor)

Humphrey, Ellen S.,
Nicholes, Fern S., A.B.,
Jenson, Myrtle R., B.S.,
Castle, Linden, B.S.,
Shaw, Edith S., B.S.,
*Christensen, J. Wesley., B.S.,
Taylor, Katherine, B.S.,
Parkinson, LaRue, B.S.,

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Erickson, Sylvan, B.S.,
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Purchasing Agent

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Bulletin Editor

Hendricks, King, B.S., M.A., Ph.D.,
Acting Librarian

Greaves, Ethelyn O., B.S., M.S., Ph.D.,
Cooperator (Dean of Home Economics)

Clyde, George D., B.S., M.S.,
Cooperator (Dean of Engineering)

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Cooperator (Director, Branch Agricultural College)

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Cooperator (Director Agricultural Extension Service)

Culmsee, Carlton, B.S., M.A., Ph.D.,
Cooperator (Dean of Arts and Sciences)

*On leave.
FACULTY

Turner, Lewis M., B.S., M.S., Ph.D.,
Cooperator (Dean of Forest, Range and Wildlife Management)

Wanlass, William L., A.B., A.M., Ph.D.,
Cooperator (Dean of Commerce)

Wrigley, Robert L., B.S.,
Cooperator (Asistant Director Agricultural Extension Service)

RESEARCH PROFESSORS

Alder, Byron, B.S.,
Head of the Department of Poultry Husbandry

Caine, George Ballif, B.S., M.S.,
Head of the Department of Dairy Husbandry

Clyde, George D., B.S., M.S.,
Dean of Engineering

Esplin, Alma C., B.S., M.S.,
Animal Husbandry

Evans, Robert J., B.S., Ph.D.,
Head of the Department of Agronomy and Soils

Gardner, Willard, B.S., M.S., Ph.D.,
Physics

Geddes, Joseph A., B.S., M.S., Ph.D.,
Head of the Department of Rural Sociology

Greaves, Joseph E., B.S., M.S., Ph.D.,
Head of the Department of Bacteriology and Biochemistry

Hammond, Datus M., B.S., A.M. Ph.D.,
Head of the Department of Zoology and Entomology

Hill, Reuben L., B.S., Ph.D.,
Head of the Department of Chemistry

Israelersen, Orson W., B.S., M.S., Ph.D.,
Irrigation and Drainage

Jennings, David Stout, B.S., Ph.D.,
Agronomy and Soils

Knowlton, George F., B.S., M.S., Ph.D.,
Entomology

Madsen, Louis L., B.S., Ph.D.,
Head of the Department of Animal Husbandry

Morris, Arthur J., B.S., M.S.,
Cooperator, Dairy Manufacturing

Pittman, Don W., B.S., M.S.,
Agronomy and Soils

Richards, Bert Lorin, B.S., M.S., Ph.D.,
Head of the Department of Botany and Plant Pathology

Stoddart, Laurence A., B.S., M.S., Ph.D.,
Head of the Department of Range Management

Thomas, W. Preston, B.S., M.S., Ph.D.,
Head of the Department of Agricultural Economics

Walker, Rudger H., B.S., M.S., Ph.D.,
Agriculture
RESEARCH ASSOCIATE PROFESSORS

Bateman, George Q., B.S.,
Dairy Husbandry

Bracken, Aaron F., B.S., M.S.,
Cooperator in Agronomy

Blanch, George T., B.S., M.S., Ph.D.,
Agricultural Economics

Coe, Francis M., B.S., M.S.,
Head of the Department of Horticulture

Cutler, Harold H., B.S., M.S.,
Agricultural Economics

Harris, Lorin E., B.S., M.S., Ph.D.,
Animal Husbandry

Miner, Merthyr L., B.S., D.V.M.,
Veterinary Science

Pollard, Leonard H., B.S., M.S., Ph.D.,
Head of the Department of Vegetable Crops

Sorenson, Charles J., B.S., M.S.,
Entomology

Stevens, Kenneth R., B.S. M.S., Ph.D.,
Bacteriology and Biochemistry

Symons, Joseph N., B.S., M.S., Ph.D.,
Rural Sociology

Thorne, D. Wynne, B.S., M.S., Ph.D.,
Agronomy and Soils

Tingey, Delmar C., B.S., M.S.,
Agronomy and Soils

Wann, Frank B., A.B., Ph.D.,
Botany and Plant Pathology

Wilcox, Ethelwyn B., A.B., M.S., Ph.D.,
Home Economics

RESEARCH ASSISTANT PROFESSORS

Bell, T. Donald, B.S., M.S., Ph.D.,
Animal Husbandry

*Binns, Wayne, D.V.M.
Veterinary Science

Broadbent, Dee A., B.S., M.S.,
Agricultural Economics

Burgoyne, David A., B.S. M.S.,
Assistant to the Director

Christensen, John V., B.S., M.S.,
Animal Husbandry

Cook, C. Wayne, B.S., M.S.,
Range Management

*On leave.
<table>
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<tr>
<th>FACULTY</th>
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<tbody>
<tr>
<td>Harrison, Gladys, L., A.B.,</td>
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<tr>
<td><em>Bulletin Editor</em></td>
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<td>Holmgren, Arthur H., B.S., M.S.,</td>
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<td><em>Botany and Plant Pathology</em></td>
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<td>Jones, Lewis W., B.S., M.S.,</td>
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<td><em>Bacteriology and Biochemistry</em></td>
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<td>*Madsen, Milton A., B.S., M.S.,</td>
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<td><em>Animal Husbandry</em></td>
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<td>Nielsen, Harold M., B.S., M.S.,</td>
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<td><em>Veterinary Science</em></td>
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<td>Peterson, Howard B., B.A., M.A., Ph.D.,</td>
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<td><em>Agronomy and Soils</em></td>
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<td>Wilson, LeMoyne, B.S., M.S.,</td>
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<td><em>Agronomy and Soils</em></td>
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<td>RESEARCH ASSISTANTS</td>
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<td>Brown, J. B., Jr.,</td>
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<td><em>Horticulture</em></td>
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<td><em>Botany and Plant Pathology</em></td>
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<td><em>Dairy Husbandry</em></td>
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<td>COLLABORATORS</td>
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<td>Blood, H. Loran, B.S., Ph.D.,</td>
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<td><em>Bureau of Plant Industry, Soils and Agricultural Engineering</em></td>
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<td>Carlson, John W., B.S., M.S., Ph.D.,</td>
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<td>Keller, Wesley, B.S., M.S., Ph.D.,</td>
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<td>Lauritzen, C. W., B.S., M.S., Ph.D.,</td>
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<td><em>Soil Conservation Service</em></td>
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<td>*McAlister, Dean F., B.S., M.S., Ph.D.,</td>
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<td>Maughan, J. Howard, B.S., M.S.,</td>
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<td>Peay, Walter E., B.S., M.S.,</td>
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<tr>
<td><em>Bureau of Entomology and Plant Quarantine</em></td>
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<td>Thorne, James P., B.S., M.S.,</td>
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<td>Woodward, Rollo W., B.S., M.S.,</td>
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<td><em>Bureau of Plant Industry, Soils and Agricultural Engineering</em></td>
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</tbody>
</table>

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EXTENSION SERVICE STAFF

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Owens, William White, B.S., M.A.,
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Wrigley, Robert L., B.S.,
Professor, Assistant Director for Agriculture

Davidson, Myrtle, B.S., M.A.,
Professor, Assistant Director for Home Economics

Berntson, Russell E.,
Secretary-Treasurer

Alder, Byron, B.S.,
Professor, Extension Poultryman

Barrows, Effie Smith, B.S.,
Assistant Professor, Extension Home Furnishings Specialist

Bracken, Aaron F., B.S., M.S.,
Associate Professor, Extension Agronomist

Broadbent, Dee A., B.S., M.S.,
Assistant Professor, Extension Economist

Carpenter, G. Alvin, B.S., M.S.,
Assistant Professor, Extension Economist and Farm Labor Supervisor

Caine, George B., B.S., A.M.,
Professor, Extension Dairyman

Draper, Carroll I., B.S., Ph.D.,
Associate Professor, Extension Poultryman

Esplin, Alma C., B.S., M.S.,
Professor, Extension Animal Husbandman

Floyd, J. Whitney, B.S., M.S.,
Professor, Extension Forester

Henderson, George R., B.S., M.S.,
Professor, Extension Animal Husbandman

Miller, Elna, B.S., M.S.,
Assistant Professor, Extension Nutritionist

Morris, Arthur J., B.S., M.S.,
Professor, Extension Dairy Manufacturing Specialist

Morris, Laval S., B.S., M.S.,
Associate Professor, Extension Landscape Architect

Rich, Lyman H., B.S., M.S.,
Associate Professor, Extension Dairyman

Sharp, David, Jr., B.S.,
Associate Professor, State Boys' and Girls' Club Specialist

*Shipley, Fern, B.S.,
Assistant Professor, Assistant Boys' and Girls' Club Specialist

*On leave.
Smith, Lois Peel, B.S.,
  Assistant Professor, Extension Clothing Specialist

Thomas, W. Preston, B.S., M.S., Ph.D.,
  Professor, Extension Economist

Knowlton, George F., B.S., M.S., Ph.D.,
  Professor, Extension Entomologist

Assistant Professor, Extension Editor

Assistant Professor, Extension Horticulturist

Assistant Professor, Assistant Boys' and Girls' Club Specialist

Olsen, Nolan P., B.S.,
  Secretary to Director

COUNTY AGRICULTURAL AGENTS

Ashton, Clarence D., B.S.,
  Instructor, Assistant County Extension Agent, Utah County

Bagley, LaZone, B.S., M.S.,
  Assistant Professor, County Extension Agent, Wayne County

*Broadbent, Emer E., B.S.,
  Instructor, Assistant County Extension Agent, Box Elder County

Broadbent, Marden, B.S.,
  Assistant Professor, County Extension Agent, Duchesne County

Burtenshaw, G. Ray, B.S.,
  Instructor, Assistant County Extension Agent, Weber County

Call, Anson B., Jr., B.S., M.S.,
  Assistant Professor, County Extension Agent, Washington-Kane Counties

Christiansen, A. L., B.S., M.S.,
  Associate Professor, County Extension Agent, Weber County

Conrad, Max E., B.S.,
  Assistant Professor, County Extension Agent, Piute County

Cook, Merrill E., B.S.,
  Assistant Professor, County Extension Agent, Wasatch County

Cornaby, Fred H., B.S.,
  Assistant Professor, County Extension Agent, Grand County

Gibson, Elmer H., B.S.,
  Assistant Professor, County Extension Agent, Sanpete County

Guymon, E. Lee, B.S., M.S.,
  Assistant Professor, County Extension Agent, Summit County

Hansen, Reuben, B.S.,
  Instructor, Assistant County Extension Agent, Cache County

*On leave.
Hunsaker, Lloyd R., B.S.,  
Assistant Professor, County Extension Agent, Cache County

Keetch, Russell R., B.S.,  
Assistant Professor, County Extension Agent, Uintah County

MARTINEAU, Vere L., B.S.,  
Associate Professor, County Extension Agent, Salt Lake County

Nichols, DeLore, B.S.,  
Associate Professor, County Extension Agent, Davis County

Parrish, Joseph F., B.S.,  
Assistant Professor, County Extension Agent, Juab County

Price, Lew Mar, B.S.,  
Associate Professor, County Extension Agent, Sevier County

Richards, Clyde R., B.S.,  
Associate Professor, County Extension Agent, Morgan County

Smith, Albert E., B.S.,  
Associate Professor, County Extension Agent, Tooele County

Steffen, Hyrum, B.S.,  
Assistant Professor, County Extension Agent, Beaver County

"Stewart, Robert H., B.S.,  
Associate Professor, County Extension Agent, Box Elder County

Stokes, L. Darrell, B.S.,  
Assistant Professor, County Extension Agent, Emery County

Thatcher, Ray A., B.S.,  
Assistant Professor, County Extension Agent, Garfield County

Tueller, Lamont E., B.S.,  
Assistant Professor, County Extension Agent, Iron County

"Warnick, Charles W., B.S.,  
Instructor, Assistant County Extension Agent, Box Elder County

Whornham, George, B.S., M.S.,  
Assistant Professor, County Extension Agent, Millard County

Willie, Vernal, B.S.,  
Instructor, Assistant County Extension Agent, Box Elder County

Allred, A. Fullmer, B.S.,  
Assistant Professor, County Extension Agent, Carbon County

Burningham, Melvin S., B.S.,  
Instructor, Assistant County Extension Agent, Salt Lake County

HOME DEMONSTRATION AGENTS

Agren, Ellen, B.S., M.A.,  
Assistant Professor, Home Demonstration Agent, Davis County

Carlson, Minette R., B.S.,  
Assistant Professor, Home Demonstration Agent, Summit-Morgan Counties

*On leave.
FACULTY

Gormley, Frances, B.S.,
Assistant Professor, Home Demonstration Agent, Millard County

Hansen, Bessie, B.S.,
Assistant Professor, Home Demonstration Agent, Box Elder County

*Hurst, Rhea, B.S.,
Assistant Professor, Home Demonstration Agent, Utah County

Johnson, Theta, B.S.,
Assistant Professor, Home Demonstration Agent, Carbon County

Kearsley, Amy R., B.S.,
Assistant Professor, Home Demonstration Agent, Cache County

Lund, Ethel B., B.S.,
Assistant Professor, Home Demonstration Agent, Salt Lake County

Martin, Maud, B.S.,
Assistant Professor, Home Demonstration Agent, Weber County

Price, Aly, B.S.,
Assistant Professor, Home Demonstration Agent, Utah County

EMERGENCY WAR FOOD PRODUCTION ASSISTANTS

Biggs, Ernest O., B.S.,
Assistant, Emergency War Food Production, San Juan County

Rickenbach, Rodney G., B.S.,
Assistant, Emergency War Food Production, Millard County

EMERGENCY WAR FOOD PRESERVATION ASSISTANTS

Hurst, Rhea, B.S.,
Supervisor, War Food Preservation

Crawford, Fay, B.S.,
Assistant, Emergency War Food Preservation, Sevier County

Jensen, Naomi, B.S.,
Assistant, Emergency War Food Preservation, Emery County

Kendall, Della, B.S.,
Assistant, Emergency War Food Preservation, Washington-Kane Counties

Kunz, Edna M., B.S.,
Assistant, Emergency War Food Preservation, Garfield County

Palfreyman, Bernice, B.S.,
Assistant, Emergency War Food Preservation, Duchesne County

Parrish, Ruth, B.S.,
Assistant, Emergency War Food Preservation, Sanpete County

Vickers, Melda, B.S.,
Assistant, Emergency War Food Preservation, Uintah County

FARM LABOR

Jorgenson, O. O., B.S.,
Assistant Supervisor

*On leave.
Officers of Administration

H. Wayne Driggs, B.A., M.A., Ph.D.,
Director, Branch Agricultural College

Cooley, Hazen, B.S., M.B.A.,
Assistant Secretary and Treasurer

Johnson, Mavis,
Registrar

Faculty

Ashcroft, Theron, B.S.,
Associate Professor of Physics and Engineering
Chairman, Division of Engineering and Mathematics

Bastow, Mary Lovina, B.S.,
Assistant Professor of Arts and Textiles

Bell, T. Donald, B.S., M. S., Ph.D.,
Associate Professor in Animal Husbandry
Chairman, Division of Agriculture

Cook, C. Wayne, B.S., M.S.,
Assistant Professor of Range Management

Cooley, Charles R., B.S.,
Associate Professor of Industrial and Vocational Education
Chairman, Division of Industrial and Vocational Education

Dalley, Parley, B.S., M.S.,
Associate Professor of Physical Sciences
Chairman, Division of Physical Sciences

Finlinson, Burns L., B.S., M.S.,
Associate Professor of Social Sciences
Chairman, Division of Social Sciences
Dean of Men

Gledhill, Preston R., B.A., M.A.,
Instructor in English and Speech

Hardy, Eugene,
Assistant Professor of Auto Mechanics

Halversen, Roy L., B.S.,
Associate Professor of Music

Liston, Lee, B.S.,
Instructor in Physical Education
Athletic Coach

Nelson, Donald K., B.S.,
Librarian

*Peterson, Edwin L., B.S., M.A.,
Instructor in History and Social Science

Sargent, David L., B.S., M.S.,
Associate Professor of Agriculture and Biology
Chairman, Division of Biological Sciences

*On leave.
Stephensen, A. W., B.S.,
Instructor of Commerce
Chairman, Division of Commerce

Tucker, Grace, B.S., B.A., M.A.,
Assistant Professor of Home Economics

*Tydings, R. Nelson, B.S.,
Assistant Professor of Health and Physical Education
Athletic Coach

Whetten, Lois LaVeve, B.S.,
Instructor in Physical Education and Secretarial Science
Dean of Women

*On leave.
INTRODUCTION

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
<td>30</td>
</tr>
<tr>
<td>Physical Plant</td>
<td>32</td>
</tr>
<tr>
<td>Student Organizations</td>
<td>37</td>
</tr>
<tr>
<td>Alumni Association</td>
<td>38</td>
</tr>
<tr>
<td>Academic Regulations</td>
<td>39</td>
</tr>
<tr>
<td>Admission</td>
<td>39</td>
</tr>
<tr>
<td>Registration and Credits</td>
<td>41</td>
</tr>
<tr>
<td>Junior Division</td>
<td>43</td>
</tr>
<tr>
<td>Group Requirements</td>
<td>44</td>
</tr>
<tr>
<td>Senior Division</td>
<td>45</td>
</tr>
<tr>
<td>Graduation</td>
<td>45</td>
</tr>
<tr>
<td>Student Expenses</td>
<td>48</td>
</tr>
<tr>
<td>Scholarships and Awards</td>
<td>51</td>
</tr>
</tbody>
</table>
LOCATION

The Utah State Agricultural College is in Logan, Cache County. The city is a typical college town of 12,000 inhabitants. Highways 89 and 91 intersect at Logan, and the town is served by the Utah-Idaho Central Electric Line and the Greyhound Bus line for passengers and the Union Pacific Railroad. The College is located one mile east of the business section of Logan on a hill overlooking the valley.

POLICY

The Utah State Agricultural College in its fundamental policy has always considered the main function of education to be the preservation and improvement of the democratic way of life. The war emergency has brought this policy even more clearly into focus. Even before the war itself actually engulfed the United States, the Board of Trustees of the College took official action to place all the physical facilities of the Institution at the disposal of the Federal Government if their use should become imperative to the national effort. Subsequent to this action, an extended program of defense industry training was set up under the direct supervision of federal agencies. Later there was assigned to the College various units of military personnel from the Navy, the Marine Corps, the Army Engineers and Army Air Corps for intensive training in such fields as mathematics, physics, radio technology, physical education and other College subjects. These programs were all concluded before the end of 1944.

Besides participating in specific military programs the College has subjected its regular offering for civilian students to critical re-evaluation in light of the many problems of the emergency.

To promote continuous cooperation with the government in these and other activities growing out of the war, a special Defense Council has been set up including committees on Personnel and Selective Service, Civilian Morale, Fire Protection and Safety, Plant Facilities, Health and Sanitation, and Curriculum.

Although the College has made available its every resource for the successful prosecution of the war, it will, nevertheless, continue a full educational offering in the seven schools of instruction. To do less than this would be to weaken the very foundations upon which democracy rests, for now more than ever both the nation's service industries and the needs of everyday living require men and women trained for efficient leadership in every branch of human endeavor. Accordingly, the traditional policy of the College will be maintained, which, in accordance with the spirit of the law under which it was organized, is to provide a liberal, thorough, and practical education. The two extremes in education, empiricism and the purely theoretical, are avoided; for the practical is based upon and united with the thoroughly scientific. In addition to the practical work of the different courses, students are given excellent training in the sciences, mathematics, history, English, art, music, speech, modern languages, and other related subjects. The object is to foster all that makes for right living, good citizenship, high efficiency, and general culture.

Under this general policy, the special purpose of the Utah State Agricultural College is to be of service in the building of the State and the great West to which it belongs. The instruction in Agriculture, Engineering, and Forest and Wildlife Management, in addition to the purely professional aspects of these fields of study, deals with the special problems relating to the conquest of the great areas of unoccupied lands, the development of engineering structures, the proper use of the water supply, and the kinds of crops or livestock which in Utah and the West may be most profitable. Instruction in mechanic arts points out the most promising trades and teaches them in such a way as to meet the needs of the area. Instruction in commerce relates to the undeveloped resources and the present commercial conditions of the State, and investigates the principles and methods to be applied in the commercial growth of Utah. The School of Home Economics offers training in the various phases of homemaking and
for professional life. In the School of Education students are given the professional training which qualifies them for teaching and school administrative positions.

The Constitution of Utah establishes the Utah State Agricultural College and the University of Utah as the two State institutions of higher learning. Each of these institutions is independent in government, although each is a part of the public school system. Each, under the Constitution and the Statutes of Utah and in harmony with the ruling of its governing board, offers undergraduate and graduate work leading to the Bachelor’s and Master’s degrees. The College, in addition to this high status given it in Utah under the Constitution, is one of the fifty-one land-grant institutions in the United States designated by the Federal Government as the institutions of higher learning in the respective states for the development of the Federal program of education included in the Morrill and Nelson Acts of the Federal Congress.

HISTORY

The Utah State Agricultural College, the Experiment Station and the Extension Service exist today because of far-sighted legislation which created, stated the purposes, and set forth the fields of activity of these divisions. The Morrill Act of 1862 provided for the establishment of Land-Grant Colleges by the grant of Federal lands thus providing a material basis for these institutions. Utah received 200,000 acres. The second Morrill Act of 1890 carried an annual appropriation to each college; the sum to be spent for instruction in designated fields. Additional Federal legislation increased the financial aid to the institution, including the Hatch Act of 1887 for experimental purposes, the Smith-Lever Act of 1914 to aid in beginning and developing extension work, and more recently, the Bankhead-Jones Act which supports all three divisions in some degree. All these acts constituted the basis of Federal participation in the extension of college education and rural agricultural development to the masses of American people. It was a democratic movement in education. Participation by the Territory of Utah in the Federal program of education came through the passage of an act “to establish an Agricultural College and an Agricultural Experiment Station.” This bill, introduced into the legislature by Representative Anthon H. Lund on February 27, 1888, unanimously passed both houses and was signed by Governor Caleb West, March 8, 1888.

The purposes of the college have been stated in Federal and Territorial acts. The Federal Land Grant Act of 1862 explained that the colleges were, “without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.” The Territorial Act of 1888 confirmed these purposes and defined the fields of instruction offered by the college to include “the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy, physiology, the veterinary art, entomology, geology, and such other natural sciences as may be prescribed, technology, political, rural and household economy, horticulture, moral philosophy, history, bookkeeping, and especially the application of science and mechanical arts to the practical agriculture in the field.” Though the fields of education increased in number and scope and additional subjects were added to the curriculum in harmony with subsequent legislative acts, each president of the college has reaffirmed the purposes as set forth by the Federal and Territorial founders of the school.

The necessary legislation having been enacted to set up the machinery, the next important task was to establish the college concretely. The Lund Act declared the school should be erected “at any place in Cache county that may be designated by the trustees.” Logan and Cache county gave the present site of one hundred acres and in 1889, the contract for the south wing of the main building was let to the contractors. Professor J. W. Sanborn of New Hampshire was chosen as director of the experiment station, and in 1890, he came to Utah, arriving in Logan in January. The wing of the building was completed, mem-
bers were chosen for the experiment station and the college staff, and in September 1890, the college opened its doors to prospective students. President Sanborn, Professors W. P. Cutter, E. S. Richman, John T. Caine, Jr., Abby Marriott, A. A. Mills, Jacob Sholl, H. C. Everett, and Sarah Goodwin formed the first faculty. The student body of 1890-1891 totaled 139, many of them being below the college rank of those days.

Since its beginning in 1890, six presidents have guided the destinies of the college. Following President Sanborn came President J. H. Paul in 1894, President J. M. Tanner in 1896, President W. J. Kerr in 1900, President John A. Widtsoe in 1907, and President E. G. Peterson in 1916. Dr. F. S. Harris, in taking over this year, becomes the seventh President of the institution. From one building in 1890, the number of buildings has reached thirty-seven, the college faculty has grown from 9 in 1890 to 283 in 1943, and the student body has expanded from 139 in the beginning to a cumulative total for the regular school year of 3,393 for 1939-40, when registration reached its peak.

Seven schools: Agriculture, Forestry, Home Economics, Arts and Sciences, Commerce, Engineering and Mechanic Arts, and Education, provide professional and cultural training for the students of the college. The institution is on the accepted list of the Association of American Universities and the American Association of University Women. In 1929 the name of the college was changed from Utah Agricultural College to Utah State Agricultural College.

PHYSICAL PLANT

The Physical Plant of the college has been built over a period of half a century, and comprises one of the most beautiful college campuses in the whole country. It occupies more than ninety acres of the large delta built up of gravels and sediments brought down from the Wasatch Mountains to the east by Logan River into ancient Lake Bonneville over thousands of years. Many of the structures and landscape features of the campus still suggest something of the doings of nature in that remote past. Alterations and carvings of the old lake delta into beautiful terraces, curves and elevations, during the times of its ups and downs and since the last receding of the ancient lake to its present Salt Lake remnant, are still outstanding features. Viewed from the College Hill in any direction, north, south, east, or west, the mountains, the valley, the green fields, meandering streams, and the distant horizons with their angular profiles against clear blue skies, all furnish real sources of inspiration and admiration.

Buildings and Facilities

To house its many varied and rapidly growing educational and research activities, the College now has thirty-seven carefully planned, mostly modern, steam heated and well lighted buildings on the campus. Identified with each building or group of buildings are to be found centers of student activities and interests which largely go to make up the undergraduate life at the college.

The Main Building, so called, a three-story brick structure more than three hundred and fifty feet long, is the landmark in the history of the institution. This building, whose halls and classrooms have resounded to the voices of the classes coming and going since the college was founded more than fifty years ago, is the hub about which most of the college activities revolve. In it are located the administrative and the business offices of the College and Experiment Station, the departments of Agricultural Economics, Art, Education, Geology, Mathematics, Modern Languages, Music, Psychology, Sociology, Speech, Zoology, and the School of Commerce. The College bookstore is in the basement. The main auditorium of the College, meeting place for most student gatherings, is also located in the east wing of the building. A Little Theatre, used by the Speech department, is on the second floor, west wing.

A new combination Home Economics and Commons Building, perhaps the most imposing and carefully planned building on the campus for its multiple purposes, is now the social and cultural center of the college. Architecturally, the building is beautiful and modern in every respect. It is used exclusively
for college functions, the students and faculty alike taking advantage of the facilities offered in the way of lounges, reception and ball rooms. The building also houses a beautiful cafeteria with well equipped kitchens and dining rooms which add greatly to the comfort and convenience of the student and faculty patrons. Educationally, this new structure functions on the campus as the housing quarters of the School of Home Economics and the departments of Physiology and Public Health. These several departments are provided with ample space in modern, well-lighted classrooms and laboratories. All research and practice laboratories are provided with standard, scientific equipment. Offices of the Deans of Students and Women, and the Student Body, are also located in this building.

The Thomas Smart Gymnasium, a brick structure erected in 1912, has long been a landmark and is still the center of a large part of the athletic activity on the campus. Since its erection, this building up to a few years ago, housed the department of Physical Education for men and women, Competitive Athletics, indoor and intramural sports, and the offices of the college physician and school nurse, and the whole of the physical education staff. With the completion of the new stadium and athletic field houses, the crowded condition in the Smart Gymnasium has been greatly relieved. The whole of the Department of Competitive Athletics has been relocated with adequate quarters in the new buildings. These changes have brought about a much more satisfactory housing arrangement together with an adequate and efficient physical training plant.

The new Field House, an immense steel and brick structure, three hundred and fifty-six feet long, by one hundred and thirty-seven feet wide, completed in 1939, has already become a much used building for functional activities of the College. Besides being the new center of college competitive athletics, the building is coming more and more to be used for other larger college and public gatherings. Especially, since the size of the student body became a problem, has the new Field House demonstrated its multiple purpose usefulness by providing adequate space for the annual commencement exercises. Equipped with an excellent basketball playing floor and a seating capacity of more than three thousand, the building now provides ample space to accommodate both students and the public at basketball games or other athletic contests. For indoor tennis, track, softball, and football practice, the building is ideal.

A companion building to the Field House, completed in 1940, is the new Military Science Building, located just a few feet to the east with a corridor connection between the two. This building, a brick-concrete structure, fifty-nine feet wide by one hundred and eighty feet long, now, for the first time in college history, adequately houses the Military Science and Tactics department of the College. It was designed for the special needs of the Military department and is provided with fine offices, classrooms, rifle ranges, gun and equipment supply rooms. A large gun shed is made a part of the building. Because of its location with relation to the Field House, military training the year round has been greatly facilitated.

The Extension Service Building, one of the old buildings on the campus, is a two-story brick structure. It was originally occupied by the Experiment Station Staff. Since the College Extension Service became an important function of the institution, this building has been occupied by the Extension Service Staff, and is now the headquarters of a state-wide educational service organization, maintained by the College and Federal Government jointly.

Widtsoe Hall, a three-story, brick-concrete, fireproof building, was constructed in 1915. It is wholly occupied by the departments of Chemistry, Physics, and the College Experiment Station Laboratories. All classrooms in the building are well lighted and heated, and provided with desks and equipment for teaching demonstrations and experiments. Chemical and Physical laboratories are furnished with ample facilities and scientific equipment for student training and research in these fields.

The Animal Industry Building, a three-story, brick-concrete structure erected in 1917, is occupied by the departments of Dairy Manufacturing, Animal Husbandry, Poultry, Vegetable Crops, Landscape Architecture, and Horticulture. In its large and well-lighted rooms, the building is exceptionally well
equipped with laboratory and classroom facilities for the study and teaching of dairy manufacturing and animal husbandry, including dairy and beef cattle, horses, hogs, sheep and poultry. A modern and fully equipped cheese and butter manufacturing plant occupies part of the building, which is used for practical training in dairy products manufacturing. Complete laboratories for research and studies in animal nutrition and wool grading are new additions in this building. Classrooms and office space for the departments of Vegetable Crops and Landscape Architecture and Horticulture are provided in this building until such time as other and more suitable quarters can be provided for the work in these fields.

The Plant Industry Building is also a brick-concrete structure of four stories, erected in 1917. It is modern in design and arrangement, and houses the departments of Agronomy, Bacteriology and Biochemistry, Botany, Plant Pathology and Soils. Housed in this building, also, is an excellent Herbarium, located in new quarters on the fourth floor. All the departments housed in this building are provided with well lighted classrooms and laboratories. Laboratory equipment and facilities for teaching and research work are adequate for thorough training in all departments located in the building.

The Engineering Building, a modern, four-story, brick-concrete, fireproof structure, also erected in 1917, was well planned for its special purpose—training in engineering work. The School of Engineering, Trades and Industries has its headquarters here. In this building, all the college work in Civil Engineering, including Surveying, Mechanical Drawing, Hydraulics, Irrigation and Drainage, Municipal and Agricultural Engineering, is taught. This building houses the Hydraulics, Irrigation, Soil Mechanics, and Agricultural Engineering Laboratories, all of which are modern and well-equipped. The Drafting rooms and the Design Laboratories are also housed in this building.

The Mechanical Arts Building, housing the shops of the School of Engineering, Trades and Industries, located on the campus to the south of the Main Building, is another of the older buildings of the college. To keep pace with the rapidly expanding demands for training in automotive, radio and aeronautical mechanics, the building has been extensively remodeled and additional floor space provided. It now houses all shops and laboratories on the campus used for the work in the technology in Auto Mechanics, Aeronautics, Woodwork, Forging, Machine Shop practice, Sheet Metal work, Welding, Radio and Electricity. Laboratories, classrooms, shops, radio and sound recording rooms used in these several fields, are adequately equipped to give complete training to students wanting to prepare themselves for the skilled technical trades and for service as technicians in industry. More than $150,000 in new equipment has been added to the shops during the past four years.

The Library Building constructed in 1930, academic and cultural center of the College, is another new building, located on the east side of the campus. Space is also provided in the building for a Children's Library in connection with a beautifully designed special reading room for under-college-age groups. The departments of English and History use the top floor for their classes because of the convenient access to the library stacks.

The Forestry Building, located on the northwest corner of the campus, is another of the older buildings of the College. A four-story, brick structure, in the olden days it was originally a girls’ dormitory, and later, the home of the School of Home Economics. Rearranged when the new Commons and Home Economics Building was completed, it now houses the School of Forestry. In this comparatively new educational field, thorough and technical training in the departments of Forestry, Range and Wildlife Management is provided by the College. Its classrooms, laboratories and specimen museums are provided with equipment and all facilities for complete training in these new and important fields of national resources. In connection with the Forestry School, the College conducts a Forestry Summer School for students at its own camp, located in Logan Canyon about twenty miles northeast from the College.

Child Development laboratories and practice houses occupy two campus residences immediately north of Widtsoe Hall. In connection with these, outdoor space, well supplied with playground equipment, is available to the important and rapidly growing Child Development movements.
The Women's Residence Hall, a beautiful, brick-concrete, fireproof building completed in early 1938, is a greatly needed addition to women student housing facilities in Logan. The building, located to the east of the Library Building, is provided with a commodious, beautifully furnished community reception room, a lounge and laundry. The dormitory rooms are well furnished, heated and lighted, providing comfortable, modern accommodations to about one hundred women resident students. The building is air-conditioned throughout.

College greenhouses on the campus are now composed of seven complete units which cover 11,588 square feet of planting space. Head houses, built in connection with the greenhouses, furnish ample room for laboratory, storage, and sorting space needed for student training and research in plant breeding and propagation in horticulture, floriculture, vegetables, grains and grasses. In 1939, two new greenhouses were added to the plant, which have greatly relieved the crowded condition in the old houses. The new houses are used largely for experimental work in plant breeding research, insect and disease control.

The College barns include a group of buildings suitable for the care of cattle, horses, sheep, and hogs with ample storage space for supplies of livestock feeds. In the college owned herds on the campus, are to be found individuals and groups representative of various breeds of livestock common to the intermountain section. An experimental demonstration Holstein dairy herd is maintained and operated by the College and Experimental Station on a modern dairy farm located at North Logan, one mile north of the campus. In 1939, more pure bred dairy and beef cattle were added to the herds. Most of these additions are located on farm property recently acquired from Cache County, both of which add greatly to the facilities of the College for training students in livestock feeding and breeding technique.

A Stock Judging Pavilion on the campus, used in common by the several livestock departments, makes it possible to do stock judging under comfortable conditions at all seasons of the year.

The Poultry Plant, built on the colony plan, is adequately equipped for class and experimental research work in poultry husbandry. Among the College flocks are all the important breeds of domestic fowls. The plant is equipped and extensively used for study and research on the best methods of feeding, housing, and disease control in poultry to obtain the most economical production.

The Veterinary Science Building, a one-story brick-concrete structure, and a recent addition to the campus buildings, has office space, a well equipped dispensary, operating rooms, stalls for animals, and modern equipment for training and scientific work in the field of Veterinary Science and Medicine. A veterinary clinic is periodically conducted in connection with the work of this department. The building is equipped for research and clinical work in Veterinary Science and animal diseases.

The Heating Plant of the College is located in one central boiler house on the campus. From this central plant, heat is supplied to all the buildings on the campus by means of steam through distribution lines in underground tunnels. To provide adequate heat for the greatly increased campus requirements of the last few years, the plant was much enlarged in 1939 and put on a high pressure steam operating basis. The plant now has a capacity of approximately one thousand horsepower. The latest addition to the plant was a two hundred and ninety horsepower water tube boiler, capable of operating at one hundred per cent overload.

Laboratories

The college laboratories, including Animal Breeding, Animal Nutrition, Bacteriology, Botany, Chemistry, Engineering, Entomology, Farm Crops, Geology, Home Economics, Mineralogy, Physics, Physiology, Plant Pathology, Soil Physics, Wood and Zoology, are adequately equipped and provided with satisfactory working conditions. The equipment of the laboratories is generally complete and extensive experimental research work is carried on by the faculty and advanced students in many different scientific fields.
The College Library

The College Library is designed primarily to provide students with the books, magazines, and documents they need in their resident study programs. Its next purpose is that of providing faculty members with the volumes they need to prepare themselves for their teaching and research functions. However, any citizen of the State may make arrangements to borrow through his home library any book not in actual use or demand. Citizens located near enough to the College to do so, may call and make arrangements to use the library directly.

The collection, which now numbers approximately 90,000 volumes, plus 125,000 government documents, is housed in a building, erected in 1930. On the first floor are located the Reserve Book Room, cloakrooms, and the Children's Library. On the second floor the Loan Desk, Reference Desk, and catalogs, indexes, and the main reading room. The third floor is used for classes of the departments of English and History.

The collection of government documents is especially strong (now about 125,000 volumes) as it is a depository library. Furthermore, the Experiment Station Library has been recently incorporated in the Main Library, practically doubling the holdings in the United States Department of Agriculture publications and various state agricultural experiment station bulletins.

The sets of periodical and serial publications, particularly those sponsored by learned societies, are being added to and missing volumes filled in each year. It now subscribes to 520 scholarly journals and receives 136 as gifts. Five major daily papers are subscribed to, and about 50 gift subscriptions of local weeklies are sent it each year.

The Herbarium

The Intermountain Herbarium was established in 1932 by action of the Board of Trustees. The function of the herbarium is largely to serve as the repository of plant materials obtained by field exploration, gifts, and exchanges with other institutions; materials that constitute the basis upon which the rich native vegetation of Utah and the Intermountain Region is receiving scientific, economic, and popular investigation and descriptive treatment. From time to time the results of the herbarium researches are released as technical articles published in scientific journals or economic and popular bulletins and circulars released by the Utah Experiment Station.

Most of the species that grow in Utah and the Intermountain Region are represented in the herbarium.

The herbarium is likewise the depository of a branch of the College Library, consisting of literature dealing with floristic botany and descriptive taxonomy.

Graduate work in plant taxonomy offered by the Department of Botany utilizes the adequate facilities of the herbarium. These graduate studies may entail thesis researches of a phytographic, revisionary, or floristic nature.

The facilities of the herbarium are also available, by arrangement with the curator, for consultation and research by all qualified members of the College staff, students, collaborating agencies, institutions and members of the community.

Identification of and information concerning native or introduced plants will be provided by the herbarium staff. Requests for information or plant identification should be addressed to the Curator of the Herbarium.

STUDENT ORGANIZATIONS

Government and Traditions of the Student Body Organization

The Student Body Organization embraces all the students of the Institution. Its prime object is to foster a proper spirit of college loyalty, and to give the students practice in managing public affairs. It also secures dispatch and
efficiency, as well as uniformity, in the administration of all matters pertaining to the entire student body, and encourages all students to participate in a limited number of college activities. A point system of awards to recognize participation in all non-athletic activities encourages high scholarship during participation by means of graduated bonuses for higher scholarship. The organization provides each member with a maximum of proper athletic, theatrical, and social recreation at a minimum expense. This organization has control, with faculty cooperation, of the following student activities:

1. a. Athletics, for men.
   b. Athletics for women.

An intramural program, including all seasonal sports for which awards are given, is conducted.

2. Musicals, including all public performances of the Band, the Orchestra, and Musical Clubs. These organizations present several concerts during the year and each group usually tours some part of the surrounding area.

3. Theatricals. There is great activity in the field of the drama, and numerous productions are staged each year by student groups. Students participate in the lighting, staging, directing, and managing, as well as the acting. The performances of recent years have been of high quality.

4. Opera. Each year the music department produces an opera. With successful trials at classics such as Rigoletto, Faust, Aida, Il Trovatore, Student Prince, Carmen, and Blossom Time, grand opera has become traditional at Utah State.

5. Debating and Public Speaking. Debating is an extremely popular activity, drawing approximately thirty participants each year. The College is a member of the Rocky Mountain Forensic League and each fall meets schools of this group in debate, oratory, extemporaneous speaking, after dinner speaking, and panel discussion. Participation in the Utah-Idaho Junior College Forensic League and in debate tournaments on the Pacific Coast provides ample opportunity for experience in tournament debating. Intrastate debates are held in the form of a state legislature and are highly successful.

6. Student Publications. The students of the College publish a weekly school paper, “Student Life,” the College yearbook, “The Buzzer,” and a quarterly magazine, “Scribble,” all of which are distributed to all of the regularly registered students. Some campus organizations also sponsor publications of their own such as the Forestry Club’s “Juniper.”

7. Lyceum Course. The lyceum program which brings numerous national and international figures to the College is one of the most important Student Body activities.

8. Dances and Entertainments. At frequent regular intervals, the Student Body Organization sponsors all-college dancing parties, informal and formal in nature, and regular student body assemblies which provide extensive expression for all student talent. Students with talent and interest in such participation should register with the student Public Service Bureau.

Associated Women Students is an organization made up of all women students registered at the college. Its purpose is to unite the women of the college and encourage activity of women in campus affairs and development of talents.

Campus Organizations

Fraternities, Honorary. Alpha Epsilon Delta (pre-medical), Alpha Kappa Psi (commerce, men), Alpha Zeta (agriculture, scholastic), Blue Key (service), Delta Phi (mission service), Lambda Rho (journalistic, women), Xi Sigma Pi (forestry, scholastic), Phi Kappa Phi, (scholastic, co-educational), Phi Upsilon Omicron (home economics, scholastic), Pi Gamma Mu (social science), Scabbard and Blade (military, men), Sponsors (military, women), Theta Alpha Phi (dramatic, co-educational), Theta Chi (business, women), Fourth Estaters (journalistic, co-educational), Spur’s (service, sophomore women).

Fraternities, Social. Beta Kappa, Lambda Chi, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Sigma Phi Epsilon.
Sororities, Social. Alpha Chi Omega, Chi Omega, Kappa Delta, Theta Upsilon.

Clubs. Ag Club (agriculture), Ag Econ, Agora (debating), Independent Students' Association (unaffiliated students), Civil Engineers, Empyrean (literary), 4-H Club (social), Foresters, Home Economics Club (home economics majors), Inter-Collegiate Knights (service, men), International Relations Club (discussion group), Ladies' Glee Club, Men's Glee Club, Phraterees, Women's Athletic Association, Aggie Veterans Organization.

The offices of the Dean of Students and Dean of Women, in conjunction with other members of the Committee on Social Affairs, render specific aid to all organizations in their financial planning.

ALUMNI ASSOCIATION

The Utah State Agricultural College Alumni Association was organized on June 13 and 14, 1899, by a group of Alumni who met on the campus and formed the Association. At that time there were 44 members. Since then, the Association has shown consistent and rapid growth until it now numbers over 6,500 graduates and approximately 35,000 former students who did not obtain degrees.

The graduates of Utah State Agricultural College have achieved outstanding prominence in every walk of life and in every state in the nation. There is not a battle front today that is not being manned through the help and intelligence of a former Aggie. An exceptionally large number of these service men are now holding high commissions in the military and naval forces. The women are also filling their niche and many have attained high rank in the various women's corps.

Purpose. It is the purpose of the Association, (1) to form and strengthen friendships among the Alumni; (2) to foster feelings of gratitude and love for the College; (3) to establish beneficial relationships between the Alumni and the College; (4) to promote the interests and welfare of the College and its Alumni; (5) to represent the interests of the alumni in the welfare, standards, and advancements of the College; and (6) to serve as a representative of graduating classes after they have left the Campus.

Membership. Any person who has attended the Utah State Agricultural College one quarter or more may obtain membership in the Alumni Association by making application to the Alumni Executive Committee. All persons receiving degrees, diplomas or terminal vocational certificates from the College automatically become members of the Association. Sustaining membership in the Association may be had by parents of graduates or students or by others who have shown an interest in the College or the Association, upon the payment of annual dues of five dollars. Persons not eligible for regular membership in the Association, but who have done some outstanding service to the Institution are eligible for honorary membership, and may become honorary members upon recommendation of the Executive Committee, and upon being accepted by the Alumni Council.

Dues. Annual dues are $2.00 per year and joint annual dues (husband and wife) are $2.50 per year. Life memberships may be obtained singly at $25.00 or $35.00 for a joint membership.

Government. The governing power of the Association is vested in the Alumni Council composed of fifteen elected members, and ex officio members. From this group, a president and four executive members are chosen. The president and the executive committee select the Executive Secretary and Treasurer of the Association when that position is declared vacant. The Alumni Executive Secretary is the official representative of the Association on the College Campus. Senate Bill 90 which was passed by the 26th session of the legislature and signed by the Governor March 15, 1945, makes the president of the Alumni Association an ex-officio member of the Board of Trustees of the College.

Functions. Besides maintaining a complete record of each alumnus after graduation, two special projects have been originated and sponsored by the Alumni Association—the Library Endowment Trust Fund and the Life Mem-
ACADEMIC REGULATIONS

Membership Fund. Earnings from the former fund, accumulated from popular subscriptions, are given to the College Library to aid it in the purchase of books which ordinarily could not be bought from the regular library budget.

The principal from the Life Membership Fund has in the past been loaned to worthy students to aid them in finishing their college work. Interest from the loans is used to support the Alumni Association.

The Association serves as a parent organization for several active chapters in Utah which each year sponsors dinner meetings and parties for alumni and former Aggie students in their respective areas.

Since September, 1925, the Alumni Association has published the Utah State Alumni Quarterly, a magazine appearing four times each year and devoted to keeping Alumni members informed of each other’s doings, and to maintaining a strong relationship between the Alumni and College.

ALUMNI OFFICERS—1945-46

A. Russell Croft, ’20, President.
D. A. Skeen, ’09, Past-President.
H. Parley Kilburn, ’31, Executive Secretary and Treasurer.

ACADEMIC REGULATIONS

For purposes of administration, the College is divided into the following major divisions: (1) the Academic, which is administered through eight schools; (2) the Research, administered through two Experiment Stations; (3) the Extension Service; (4) the Summer Session; (5) the Correspondence and Extension Class Work; and (6) the Branch Agricultural College at Cedar City. The Academic regulations apply to all instructional work of regular session, summer session, correspondence and extension study.

Admission

Prospective students are urged to send official transcripts of their credits to the Registrar at least two weeks before the opening of school. Anyone who has served in the armed forces is eligible to enter the Utah State Agricultural College, (1) as graduate of high school; (2) by submitting fifteen units of high school credit; or (3) by entrance examination.

Entrance with college standing is based upon (a) graduation from an accredited high school or (b) upon presentation of fifteen approved high school units of work or (c) by examination of those students eighteen years of age or older who have had other training.

Students who have not been graduated from high school and who are presenting fifteen approved units for entrance may include one unit of credit for military science or one unit of physical education, but not more than one unit in combination.

Entrance by examination will be based upon two types of tests developed by the U. S. Armed Forces Institute or other comparable tests approved and recommended by the American Council on Education. First, the tests of general educational development which are designed to measure the extent to which all of the educational experiences of the applicant for admission have contributed to his ability to “carry on” in a program of general education, or to his educational development of the type which might otherwise have resulted from attendance in a regular academic high school. Second, Subject Examinations: Each of these subject examinations may be used to determine whether the achievement of the applicant for admission is the equivalent of that expected of regular high school students for satisfactory completion of a corresponding course of classroom instruction.

Students who do not otherwise meet the entrance requirements will be required to take the General Achievement Test at the time of entrance. A student who fails this test because of extenuating circumstances prevailing
at the moment may upon the recommendation of the Examiner be admitted on a conditional basis and permitted to take an alternative test sometime during the first quarter and, thereby, establish college standing as of the date of original entry.

No credits obtained prior to the time at which college standing was established can be used toward a degree, except that where the amount of high school deficiency is so small that it requires but part of the student's time to carry courses to remove high school deficiencies, the remainder of the student's time may be spent on college courses and the credit so earned may be accepted to satisfy degree requirements.

The following suggestions are designed to emphasize the desirability of including various studies in the high school program of the student who plans to enter college.

1. **English.** Since the ability to write clearly and to read with understanding and appreciation is essential, it is highly desirable that the student complete three or four units in English.

2. **Mathematics.** Not only as a tool to further learning but as a means of providing basic education, mathematics has much to offer. Two years of such study would be profitable. Students planning to specialize in the sciences or in engineering should complete two or more units in mathematics in high school.

3. **Social Studies.** Social studies—such as history, civics, government, economics, sociology and geography—are basic to the understanding and solution of contemporary problems in the community, in the nation, and in the world. From two to four units may well be devoted to this area by the prospective college student.

4. **The Sciences.** This field is rich in possibilities for understanding the modern world. Two units in science might well be completed. For those who plan to emphasize science or engineering in college, three units would be helpful.

5. **Foreign Languages.** The prospective college student might well develop a basic reading or speaking knowledge of a modern foreign language. Some background in one of the classical languages would also be desirable.

6. **The Fine Arts.** This field offers opportunity for development in an important area of general education which can contribute much toward individual growth.

7. **Other Subjects.** None of the foregoing statements should be interpreted as meaning that other subjects—agriculture, commercial subjects, home economics, industrial arts, speech, etc.—should be avoided by the student who is planning to attend college. Such subjects, when properly studied, contribute materially to the educational growth of the individual and prepare him for continued study as well as for the more general activities of living.

Students who expect to become candidates for any degree or diploma from any of the schools of the College must include among the units presented those preparatory courses which are specified as prerequisite to the beginning college courses in the various fields. Such students are urged to give serious thought to the matter of selecting a major field of interest. Each student in cooperation with his parents, his high school principal or other high school adviser should plan the high school program of studies so as to meet the requirements for admission to his chosen field of interest. Students who fail to do this may expect to be delayed in starting their college work until the prerequisite courses are made up. Not all of the schools and departments of the college have specified prerequisites, but those which do have, list them in their school and departmental section in the college catalog. This information should be used in planning the high school course. Students who do not fit the regular college entrance requirements and who are interested only in a Terminal Certificate, may enter as Vocational Students, in which case the entrance requirements are as follows:

(a) Applicant must be at least sixteen years of age.

(b) Applicant must present a recommendation for entrance from the principal of his high school.

(c) Applicant must present satisfactory evidence of his ability to successfully complete the proposed program of study.
Transfers from Other Colleges. (Advanced Standing): The College does not grant collegiate credit for excess high school work. Advanced standing for work of satisfactory grade done in some other accredited college, after the completion of 15 units of high school work, may be granted by the Committee on Advanced Standing, provided the student presents satisfactory evidence that the work offered is equivalent to the work for which he wishes to substitute it. Transcripts submitted for evaluation become the property of the Institution, and will not be returned. Advanced standing credits, while they may be acceptable toward a degree, will not be included on a transcript of college credits until after the degree has been conferred. Transcripts should be sent to the Registrar two weeks in advance of registration. It is necessary to have them at the time of registration, in order to arrange the course of study properly.

Provisions for Education of Veterans. The Utah State Agricultural College, as a scanning of the catalog will indicate, has a very broad and diverse curriculum. This will make possible the training of ex-service men and women for many different occupations and at the same time provide ample opportunity for general education.

The College has also made special provision for entrance, vocational advisement and adjustment, acceleration, and curriculum adjustments for these men and women.

It is possible, on the basis of evidence of educational growth since leaving high school and by the demonstration of aptitude for college work on tests for this purpose, for students to enter the College without completing all high school requirements.

Acceleration toward the degree may be obtained by submitting records of formal and informal educational development somewhat equivalent to that which might have been expected from college study and by taking tests of such development. Review and short refresher courses will also be given when found needed.

Registration and Credits

Quarter Credits (Definition): A quarter hour credit is the credit given for one hour of lecture or three hours of laboratory work each week for 12 weeks.

Class Standing: Forty-eight hours of approved college work in addition to the prescribed entrance requirements, are required for Sophomore rank; 96 hours for Junior rank; and 136 hours for Senior rank. The foregoing figures include the required credits in Physical Education or Military Science.

Registration Dates: For the Fall Quarter students will register Monday, September 24. Classes will begin Tuesday, September 25.

For the Winter Quarter, all students will register on Wednesday, January 2. Classes will begin Thursday, January 3.

Registration for the Spring Quarter will take place on Monday, March 25. Class work will begin Tuesday, March 26.

On each registration day, students will be permitted to register according to an alphabetical schedule to be announced later.

Late Registration: Registrations after the last date given above for each quarter are considered late. A fee of one dollar per day will be charged for those who register late, with a maximum fee of five dollars. In case the registration cannot be completed by the prescribed day, owing to some delay caused by the College or its officers, an exemption may be obtained upon application to the Registrar on the regular day of registration. The amount of work for which any student will be allowed to register will be reduced by one and one-half credit hours for each week or fraction thereof that a student is late in registering.

Normal Registration: Fifteen hours, exclusive of the one hour of required Physical Education or Military Science, is the normal registration for any one quarter. A student not otherwise limited may, however, with the consent of the Dean or Adviser, register for seventeen hours.
Excess Registration: Registration in excess of 17 hours, exclusive of the one hour of required Physical Education or Military Science, and ¼ hour of Freshman orientation can be granted only by the Attendance and Scholarship Committee upon petition. The necessary forms may be obtained at the Registrar's Office. Excess credit is added to the student's registration by the Registrar's Office after the petition is granted. Students are not allowed to receive less credit than that listed for a course in order to bring the total registration within the maximum limit. The registration is construed to include any Extension, Correspondence, Institute, or other work carried by the student for credit or for removal of high school deficiencies during the period of the school year in question. This rule does not apply to students taking a prescribed course requiring excess registration as in the Schools of Engineering and Forestry.

If by oversight, the registration card is allowed to be filed with excess credit, the registration will be reduced to the allowed limit as soon as the error is detected.

No student will receive credit for residence work which is not included on his registration card, which must be filed in the Registrar's Office before the end of the quarter. Students who wish to attend regularly any class for which they are not registered must obtain a visitor's permit from the Registrar's Office. No credit will be allowed for such attendance.

Withdrawal From Classes: The program of courses listed on the student's registration card approved by his faculty adviser or major professor and filed in the Registrar's Office is considered as the student's official registration for the quarter. A student is held responsible for the satisfactory completion of the entire program. Unless an official “Change of Registration” form is filed with the Registrar's Office before one week following the mid-day of each quarter, F grades will be recorded in case of failure to obtain passing grades in any of the courses for which the student has registered, regardless of the reason for the failure. Changes are considered official only when signed and approved by the instructors of the classes and the faculty adviser or major professor.

Incomplete Work: Students are required to complete by the end of the quarter, all courses for which they have registered. This includes Correspondence courses for which the student may be registered on the residence registration fees. Incomplete grades can be granted by an instructor only when permission is granted by the Attendance and Scholarship Committee before the close of the quarter. The necessary petition forms may be obtained at the Registrar's Office.

Incomplete work must be finished, and a passing grade given in the course, within one year of the close of the quarter, otherwise the credit is forfeited.

Credit by Examination: In special cases, students may be permitted to obtain college credit by passing examinations in subjects not taken in course. This privilege does not contemplate the combination of “visiting” or “auditing” a class with a request for a special examination as a means of acquiring credit. Neither does it contemplate outside assignments or outlines on the part of the instructor being combined with an examination to acquire credit. This privilege is intended to measure informal education experience that is the possible equivalent of an organized course given in the college.

A maximum of eighteen quarter hours can be acquired by special examination. None of the last thirty hours presented as credit for a B.S. degree may be obtained in this manner. Unless the examination is taken prior to the close of the second week of the first quarter for which a student enrolls in any given school year, the hours of credit gained will be included as part of the student's load for the quarter.

Petition should be made to the Committee on Special Examination on special forms to be obtained at the registrar's office.

Low Scholarship and Probation. Students who have not maintained an average grade of C or better and students failing to obtain passing grades in 12 or more hours of work during the preceding quarter are automatically placed in the low scholarship group. No person in the low scholarship group shall be eligible to be elected, appointed, or hold office in the student body organization.
Students in the low scholarship group may be placed on probation for poor scholarship.

Students on probation who violate the terms of their probation are subject to immediate suspension from the college.

When in doubt regarding any of the regulations affecting them, students on probation should consult with the Attendance and Scholarship Committee. This Committee, alone, has the authority to waive or modify the terms of probation.

Students in the low scholarship group should not register for more than 15 hours per quarter, exclusive of Physical Education and Military Science.

Numbering of Courses. The collegiate work of the Institution is divided into three divisions: Junior College, Senior College, and Graduate. Courses numbered from 1 to 99, inclusive, are Junior College courses. Those listed from 100 to 199, inclusive, are Senior College courses. All courses with number 200 or over are graduate courses.

Qualified students may enter courses in any quarter, unless a statement to the contrary appears in the description of the courses.

Junior College students will not be allowed to enter Senior College courses except upon approval of the Dean or Adviser, and the instructor of the course.

**JUNIOR DIVISION**

The Junior College comprises the work of the Freshman and Sophomore years. The main purposes of this division are to provide a broad and integrated background in the principal fields of human knowledge, and to fulfill the prerequisites for the major work upon which the student will concentrate in the Upper Division.

Provisions are made in several departments of the College for the issuance of Certificates of Completion for two years of work as prescribed by such departments.

Students who expect to become candidates for the Bachelor's degree should plan their courses with great care through consultation with their faculty advisers and major professors, in order to insure the best choice of courses for filling the groups and to provide the proper foundation for their advanced work. Failure to do this may necessitate an extra year to complete the work for the desired degree.

Students should satisfy the following requirements, in order to complete the work of the Junior College Division.

1. Remove any deficiencies that may exist in the entrance requirements.
2. Complete 96 quarter hours of work (including Military Science and Physical Education) with an average grade of 75% or higher.
3. Prepare a foundation of at least 15 hours for the field of specialized study in the Senior College.
4. Satisfy the (A) English, (B) Group, (C) Military Science and Physical Education requirements as follows:

   **A. English Composition.**

   1. A special placement examination in English is required of all freshmen. This examination is a prerequisite for admission to sophomore composition (English 10 or 11).  

   2. All students except majors in the School of Engineering are required to take sophomore composition (English 10 or 11) in the sophomore year.

   **Note:** For graduation all students must present at least four hours of advanced English Composition, (English 110) or its equivalent. (To be taken in the Senior College.)
B. Groups: A total of 40 quarter hours must be selected from the following four groups with not less than 8 hours, nor more than 12 hours being counted in any one group.

1. Biological Science: At least 8 quarter hours of credit must be selected from the following basic Biological Science courses. Not more than 12 quarter hours of such credits can be counted in the total of 40 hours required in the four groups.
   - Bacteriology—any course of Lower Division grade.
   - Botany 1, 21, 22, 23.
   - Physiology 4.
   - Zoology 1, 3, 4.

2. Exact Science: At least 8 quarter hours of credit must be selected from the following basic Exact Science courses. Not more than 12 quarter hours of such credits can be counted in the total of 40 hours required in the four groups.
   - Chemistry—any course of Lower Division grade.
   - Geology—any course of Lower Division grade.
   - Mathematics—any course of Lower Division grade.
   - Physics—any course of Lower Division grade.

3. Language and Arts: At least 8 quarter hours of credit must be selected from the following basic Language and Arts courses. Not more than 12 quarter hours of such credits can be counted in the total of 40 required in the four groups.
   - Art 1, 2, 3, 22, 26, 32, 33, 35.
   - English—any literature course of Lower Division grade.
   - Landscape Architecture 3.
   - Modern Language—any course of Lower Division grade in French, German, Spanish, or Latin. (Subject to the condition that one full year must be completed in any beginning Language course before any credit can be counted.)
   - Music 1, 4, 5, 11, 12, 13, 80, 81, 87.
   - Speech—any course of Lower Division grade.

4. Social Science: At least 8 quarter hours of credit must be selected from the following basic Social Science courses. Not more than 12 quarter hours of such credits can be counted in the total of 40 hours required in the four groups.
   - Agricultural Economics 53a, 53b, 62.
   - Economics 51, 52.
   - History—any course of Lower Division grade.
   - Psychology 3.
   - Political Science 1, 10, 70, 71.
   - Sociology 10, 70.

C. Physical Education: Six quarters of work in Physical Education activity classes are required of all women students, and also of all men students who do not take the required courses in Military Science (see Military Science and Tactics).

In departments where there is a prescribed course of study such as in Forestry, and Smith-Hughes Teacher Training courses, and in Engineering, Industries and Trades, the completion of such courses shall substitute for the group requirements provided the student remains in that field.
NINETY-SIX quarter hours of credit with an average grade of 75% or higher are required for admission to the Senior College Division. Graduates of standard normal school and junior colleges and students from other colleges who present at least 90 hours of acceptable college work, in addition to the courses in Physical Education or Military Science required at the institution from which they are transferring, may be registered in the Senior College.

The completion of the group requirements in any accredited collegiate institution will substitute for the completion of the group requirements at this institution, as prescribed in the section on the junior college. This does not apply to students who have been pursuing prescribed courses which do not include the group requirements. Students who change from a prescribed course to a major under the group elective system will be held for the completion of the basic group requirements as specified in the section on the junior college. Transfer students who continue on in a prescribed course will be held for the completion of the junior college courses as prescribed at this institution, except as equivalent courses may be accepted as substitutes for our own courses.

Major Subject: The student should select a major subject upon entering, or early the first year, but in no case later than entrance in the Senior College. As soon as the major subject has been selected, the student should contact the head of the department in which he has decided to major. The head of the department will thereafter act as the student's adviser. The student's registration in each succeeding quarter should be carefully checked and approved by this adviser (called the major professor) in order to insure proper selection and sequence of courses for satisfying institutional and departmental requirements.

The Major Department has the authority to prescribe not less than 30, and not more than 50 hours of work in the major subject (exclusive of any courses which may have been used to satisfy Junior College requirements in any of the groups). The Major Department and the Dean shall also prescribe such other related courses as may be considered desirable, provided always that the students' free electives may not be reduced below 36 hours.

Minor Subject: The student is permitted to choose his own minor. The minor shall consist of 18 credit hours either in one department or in two departments closely related in nature of subject matter, provided that if the minor is in more than one department it must have the approval of the Dean and the Major Professor.

Courses used to satisfy the English composition, the basic groups, military science or physical education, and freshman orientation requirements as specified under the Junior College cannot be counted in the minimum 30 hours for a major or 18 hours for a minor.

Graduation

The College offers Certificates of Completion for two years of applied work in certain departments, the degrees of Bachelor of Science and Master of Science in all of the Schools of the College; and gives work to fulfill the requirements for all the professional certificates issued by the State Board of Public Instruction.

IMPORTANT: The College reserves the right to change at any time the requirements for graduation, and every candidate for a certificate, a diploma, or a degree shall be held to compliance with such changes, as far as the uncompleted part of his course is affected.

Students are expected to familiarize themselves with institutional rules and regulations. The responsibility for satisfying the requirements for graduation rests upon the students concerned.

Students who do not graduate in the class with which they entered are held to the requirements, including entrance, of the class with which they graduate.
Requirements for the Terminal Certificate

The Schools of Agriculture, of Home Economics, and of Engineering, Industries and Trades offer two-year courses in practical studies leading to a certificate of completion, for those who wish to fit themselves better for their vocation and for life, and who are not interested in the regular four-year course leading to the B.S. degree.

In the Schools of Agriculture and of Home Economics the courses are arranged so that the student may, at a later date, complete the four-year course with a minimum loss of time. While these short courses are designed to develop a broader understanding of the sciences underlying these fields and to lay the foundations for good citizenship, they offer a considerable range of selection of practical courses of both the Junior and Senior College grade.

The general requirements for this Certificate are:

1. Satisfy the entrance requirements (page 39).
2. Complete 96 quarter hours of work, which includes the required work in Physical Education or Military Science.
3. Complete a Major of 30 hours in one or more closely related departments of the School in which the Certificate is granted.
4. Complete a Minor of 15 hours closely related or basic to the Major-field. This need not be in the same school.
5. Complete 24 hours in the basic groups, as follows: Language, 9, which shall include English 10; Exact Science, 6; Biological Science, 5; and Social Science, 5.
6. Complete 21 hours of elective work.

Only Junior College credit may be obtained for work taken during the short course, even though some Senior College courses be taken.

For additional information, see descriptions of work in the school concerned.

In the School of Engineering, Industries and Trades, definite programs of study are prescribed leading to certificates of completion within definite fields of applied industrial work. These curricula may be found listed on page ...
Responsibility for satisfying the requirements for graduation rests upon the student concerned.

1. Six quarters work in Physical Education by men and women, provided that the candidates who are officially excused from Physical Education present one credit of other work for each quarter that they have been excused.

2. Six quarters of work in Military Science for men unless officially excused from this requirement. Men who take the work in Military Science are excused from the Physical Education requirement mentioned in paragraph one (1) above.

The advanced course consists of the third and fourth year of Military Science. Entrance upon the advanced course is elective, but once entered upon, the course becomes a prerequisite for graduation, unless the student shall be discharged in accordance with the provisions of Army Regulation 145-10.

3. One hundred eighty credits of acceptable collegiate work, exclusive of the required hours in Physical Education or Military Science.

4. Fifty-four hours of Senior College work taken after the candidate has presented at least ninety college credits, in addition to the required courses in Physical Education or their substitutes.

5. The completion of a major, a minor, and related work as outlined under Senior College.

6. The completion of the group requirements and of the English composition requirements, English 110, or its equivalent, as explained under Junior college requirements.

Paragraphs 5 and 6 above do not apply to students who are pursuing a prescribed course of study such as in Forestry, Smith-Hughes Teacher Training courses, Engineering, Industries and Trades.

7. Of the 186 hours required for graduation, at least 102 must have been earned in resident courses in some accredited collegiate institution. Resident courses are defined as courses taught on the campus, as a part of the regular teaching load of the instructor giving the class, and taught as listed in the catalog or schedule bulletin. Non-resident credits include credits earned through correspondence courses, extension courses, and special examinations. Of the 84 allowable non-resident credits, limitations have been placed on the three groups, as follows: Maximum by correspondence, 37 quarter hours; maximum by extension, 45 quarter hours; maximum by special examinations, 18 quarter hours.

8. Candidates must have been in residence at the Utah State Agricultural College during three full quarters, a full quarter being a quarter in which at least 12 resident credits are earned. Of the last 45 credits presented for the degree, at least 30 must have been earned in residence at the Utah State Agricultural College, and not to exceed 10 quarter hours may have been earned at another accredited institution.

9. Four passing grades, “A,” “B,” “C,” and “D” are employed in reporting credit. No credit with grade lower than “D” can count toward satisfying credit requirements. The maximum number of “D” grades counting as credits shall be 36 quarter hours.

Grade points have been assigned to grades as follows: 3 grade points for each hour of “A,” 2 for each hour of “B,” 1 for each hour of “C,” zero for each hour of “D.” A deduction of one grade point will be made for each hour of failure. For graduation, a student must have as many grade points as he has hours of credit for which grades of “A,” “B,” “C,” “D,” and “F” have been assigned.

10. The candidate must file an “Application for Admission to Candidacy” not later than the fourth week of the Fall Quarter preceding graduation. This application must show the course of study to be followed in order to complete all requirements for graduation, and must be approved by:

(a) The professor in charge of the major subject.
(b) The Dean of the school in which the major work is done.
11. The candidate must file an "Application for Graduation" with the Graduation Committee before January 15, containing information requested. Any candidate who fails to file his application for graduation by January 15 may be held over to the next year's commencement.

12. The candidates must be of good moral character and must have discharged all college fees.

13. Attendance in person at the Commencement and Baccalaureate exercises at which the candidate expects to secure the degree, unless excused in writing by the Graduation Committee for very urgent reasons upon petition from the student.

Requirements for the High School Teacher's Certificate

Students satisfying the following requirements in addition to those for a standard Bachelor's degree will be recommended by the College for the Professional High School Certificate issued by the State Board of Education.

The candidate must have completed a teaching major of at least thirty hours in a subject which is taught in Utah high schools, at least 15 hours of which must be Upper Division work; and a teaching minor of at least 18 hours in a subject which is taught in Utah high schools. Or, in lieu of this major and minor, a composite major consisting of not less than sixty hours credit distributed in three related subjects with not less than eighteen hours in any one subject. The candidate must have completed the following subjects allied to education: 3 hours in School Health Education, 3 hours in Physical Education, and 2 hours in Safety Education. He must have ten hours in each of the four following groups: Language Arts; Physical, or Exact Science; Biological Science; and Social Science. He must complete at least thirty hours in professional education including 12 hours in Secondary Observation and Directed Teaching, to include not less than three hours in Principles and Methods of teaching in High School; 3 hours of Organization and Administration of Utah Schools, 3 hours of Educational Psychology, 3 hours of Guidance and Personnel and 3 hours of Articulation of Schools.

STUDENT EXPENSES

1945-46

RESIDENT STUDENTS

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If a resident wishes to attend all three quarters but pay fees on a quarter basis, the payments are divided as follows: Fall, $38; Winter, $22; Spring, $20; making a total of $80.

NON-RESIDENT STUDENTS

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If a non-resident student wishes to attend all three quarters but pay fees on a quarter basis, the payments are divided as follows: Fall, $83; Winter, $22; Spring, 20; making a total of $125.00.

The fees listed above with the exception of the student body fees are the minimum fees required by state law. According to an act passed by the Legislature, all legal residents of Utah who enter the College must pay a registration fee of $10, and, in addition, they must pay a tuition fee of $17 per quarter. Students who are not legal residents of the state are required to pay a registration fee of $55, covering the entire year in addition to the tuition fee of $17 per quarter.

Students who are unable to pay the full amount of each quarter's fees are urged to make financial arrangements with financial institutions or with personal friends. In very special cases, students are allowed to sign notes for part of the fees, but this practice is discouraged. A carrying charge fee of $2.00 will be made for each note signed.

**SPECIAL FEES 1945-46**

Agricultural Economics 70, 102, 106, 113b, 114, 116, 121, 202, each .......... $ 1.00
Aeronautics 1a, 2a, 3a, 11a, 12a, 13a, 122 .......... 5.00
Automotive, Auto. 12a, 13a, 15a .......... 3.00
Auto 41a, 42a, 43a, 44a, 45a, 46a .......... 15.00
Auto. 91, 92, 93, 191, 192 .......... 10.00
Evening Trade Extension Welding .......... 10.00
Children's Literature 24 .......... 1.50
Child Guidance 60 .......... 2.00
Foods 9 .......... 1.50
Foods 106 .......... 1.50
Radio Courses, R. A. 1a, 2a, 3a, 11a, 12a, 13a, 23, 24, 25, 84, 85, 89, 101, 120, 124, 125, 126, 128, 129, 150 .......... 1.00
Note fee, per note .......... 2.00
Locker rental .......... 1.50
Late registration, per day (maximum $5.00) .......... 1.00
Teacher placement fee .......... 2.00
Teacher placement re-registration .......... 1.00
Military suit deposit .......... 5.00
Graduation fee .......... 5.00
Master degree fee for binding and proofing thesis .......... 5.00
Registration as listener in lecture course in which no credit is derived, per subject .......... 5.00

50c per credit hour fee (maximum $5.00 for the year) in the following classes:

Automotive, Auto. 51, 52, 53, 61, 62, 81, 82, 83, 84, 151, 152, 153, 162.
Chemistry: 3, 4, 5, 10, 11, 12, 15, 102, 103, 107, 108, 109, 110, 111, 116, 120, 121, 122, 123, 124, 133, 140, 240.
Dairy Manufacturing: 5, 101, 103, 151, 152, 153.
Farm Machinery Repair: A. E. 18.
Ind. Ed. 42, 113, 128.
Physics: 6, 7, 20, 21, 22, 108.


1c per mile for field trips in Forestry, Range and Wildlife courses as designated in course descriptions.

Graduate students not in residence and wishing to file thesis credit not to exceed 15 hours shall pay a fee of $10.00.

Special examinations may be taken in subjects not registered for, on approval of a special examinations committee, and upon payment of $2.00 per credit hour.

After the first week of each quarter, students changing registration must pay 50 cents for adding and 50 cents for dropping a subject.

Registration is not completed until the student has presented his fee card at the cashier's window, Secretary's Office, and settled for his fees, and filed his registration cards with the Registrar's office.

All students, when paying fees, are given official receipts from the Secretary's Office. These receipts must be presented before refunds are allowed. The students, therefore, should exercise care that the receipts are not lost or mislaid.

All fees except registration fee will be refunded to any student withdrawing from school by the end of the third week of the quarter. No refunds are allowed after the third week.

According to the constitution of the Student Body, every regular student must obtain, at time of registration, a Student Body card which will admit him to all activities controlled by the Student Body organization; athletic events—football, basketball, tennis and track—dramatics and musical entertainments, socials, lectures, etc., and, in addition, give him a copy of the annual yearbook and a subscription to the college paper. This system has been found to be a great saving to the students and a most excellent means of fostering proper interest in student activities.

Since all women students are required to take Physical Education, they must provide themselves with gymnasium suits and gymnasium shoes. The cost is about $5.00.

Each student in Foods and Dietetics, Home Nursing and Household Administration 150, must provide herself with the following: Two washable white uniforms.

The fee for Course 150—General Home Economics which is required for Home Economics education certification is $35.00 for the one-half quarter residence in the Home Management House.

The College maintains a modern, well-equipped cafeteria, where students may eat at cost.

Good board and room in private homes costs from $6.00 to $8.00 a week. By renting rooms and boarding themselves, students are able to reduce considerably the cost of room and board.

Students are held responsible for any damage done by them to the College property.

SELF-HELP

A large number of students of the Utah State Agricultural College earn part of their expenses while in residence. The College itself gives employment to many students, and college officers are glad to be of reasonable assistance to students in finding work.

Young people who expect to earn part of their way through college should, first of all, by earnest labor and careful economy, accumulate as large a college expense fund as possible. It is desirable, if possible, that this sum be sufficient to cover the expenses of the first year. Correspondence or conference with College officials sometimes reveals some way to earn the additional
amount needed. The College cannot, of course, guarantee employment to all deserving and needy students. It is an institutional policy, however, to keep all college costs as low as possible in order that capable and worthy students may have the opportunity of college training.

It is the policy of the College to encourage and aid, in every possible way, earnest, ambitious young men and women who want an education and an opportunity to help themselves.

TEACHING ASSISTANTSHIPS

Several teaching assistantships in various departments of the Institution are available each year to graduate students. Students must apply to the department which offers the assistantships in which they are interested. For the coming year, 1945-1946, these assistantships will carry remuneration of $400 plus remission of resident fees. At the present time they are available in the following departments:

Agricultural Economics, Botany, Bacteriology and Biochemistry, Economics, Geology, Physics, Chemistry, Zoology and Entomology, Dairy Manufacturing, Sociology, Irrigation and Drainage, Physical Education, Foods and Dietetics, Child Development, and Engineering, Industries and Trades.

SCHOLARSHIPS AND AWARDS

THE Johansen Scholarship Fund of $5,000, a gift of the late Mrs. Johanna Johansen, provides six scholarships annually, worth in the aggregate from $250 to $300, for help of worthy students of Junior or Senior rank. Applications for this scholarship for the succeeding year must be filed with the chairman of the Awards and Honors committee on or before April 1.

The Lieutenant Clyde Parker Baugh Memorial Fund of $10,000, a gift of Mr. and Mrs. Wilford F. Baugh, provides four scholarships annually for deserving students of high scholarship and leadership. Applications must be submitted by April 1 to the Awards and Honors Committee chairman.

KSL Meritorious Scholarships. KSL awards two scholarships in the field of radio, one in technical radio work and one in script writing or broadcasting. Applications should be presented to chairman of Awards and Honors Committee by April 1.

The 1927 Class Gift to the College yields an annual income sufficient to provide two scholarships of $125 each. Application should be made by Juniors to the Awards and Honors Committee on or before April, 1. Application must be accompanied by an approved outline of a proposed study project to be completed during the senior year and submitted to the Awards and Honors Committee not later than April 1. Two copies of the complete thesis are to be filed in the College library.

The U. S. A. C. Faculty Women’s League has a loan fund for the women students of the college. Loans may range from $50 to $200. Preference is given to Senior women students. Loans are made at any time during the year when money is available.

The Senior Loan Fund, a gift of the class of 1911, and added to by the class of 1922, has helped many students through school.

Rotary Club Senior Loan Fund. The Logan Rotary Club has provided a special loan fund to assist Seniors in meeting their expenses during the last year of their college course. Further information may be obtained from Mr. N. D. Salisbury, First Security Bank, Logan, or the chairman of the Awards and Honors Committee.

The College Award is conferred annually upon the male student of the institution who shows evidence of being able, in greatest measure, to repay the nation the investment which it has made in him, on the basis of the following rating:

(a) The potential vocational or professional efficiency of the student as
shown by his scholarly attainment, industry, natural ability and talent (50 points); and

(b) His patriotism, honesty, and good judgment as a student citizen, as an indication of his future attitude as a voter or public servant, combining a progressive spirit with a love of country and a concern for the safety and development of American institutions of liberty and justice and his qualities of social leadership, as shown in student affairs, based upon physical and moral cleanliness and strength of character (50 points).

A College Award is also conferred annually upon the women student of the Institution who shows evidence of greatest measure of:

(a) Potential vocational or professional efficiency as shown in scholarship, industry, and natural ability (50 points); and

(b) Womanly qualities, development of the social graces, not necessarily social prominence, and attitude of mind (50 points).

The Rhodes Scholarships. A number of candidates for the Rhodes Scholarships in Oxford University, England, are selected each year from the State of Utah. The scholarships are of the value of $2,000 a year, and are tenable for three years. Students who wish to apply for them must have some social and athletic distinction as well as high scholarship in mathematics, science or letters. All applicants must also have three years of French, and it is advisable to have Latin, German, and English history, as well as high school mathematics. Full information and application blanks may be secured at the President's Office or from Professor Sherwin Maeser, chairman of the Rhodes Scholarship Committee. Students who wish to apply for these scholarships are advised to start preparing for them in the freshman year. They are usually given to Seniors or graduate students. (Not given during duration of war.)

The American Legion Military Medal: A gift of the Logan American Legion Post, is awarded each year to the letterman who maintains the highest scholastic record during the year, and who exhibits the most wholesome attitude towards Military training.

The R. O. T. C. Medal, a gift of the institution, is awarded each year to the student in Military Science and Tactics who most nearly represents the ideal that the Reserve Officers' Training Corps is striving to develop, upon the following basis:

(a) Character, 20 points.

(b) Scholarship, 15 points.

(c) College activity, 15 points.

(d) Leadership, 20 points.

(e) Aptitude for and interest in Military Science, 20 points.

(f) Physique and bearing, 10 points.

The Sons of the American Revolution Medal: A gift of the National Society of the Sons of the American Revolution, is awarded each year to the non-letterman, who is a member of the R. O. T. C., and has shown the greatest interest in his military work.

The Phi Upsilon Omicron Scholarship of $25 is given annually by the Kappa Chapter of that organization to the Freshman girl in the School of Home Economics ranking highest on the following points:

(a) Scholarship.

(b) Participation in student activities.

(c) Service and cooperation.

(d) Leadership.

(e) Moral character.

(f) Judgment and reliability.

In addition, the candidate must be a member of the Home Economics Club.
SCHOLARSHIPS AND AWARDS 53

Alpha Kappa Psi Scholarship Award. Alpha Kappa Psi Fraternity, Alpha Theta Chapter of which is established at the Utah State Agricultural College, awards annually the Alpha Kappa Psi Scholarship Medallion to the male student of the Junior Class in Commerce who possesses the highest scholastic average for three years of work taken in this college.

The Home Economics Awards—Certificates of merit conferred annually to senior women in Home Economics adjudged worthy by faculty and Senior students upon the following basis:

(a) Application of Home Economics ideals to daily living, 50 points.
(b) Leadership in class work and other activities, 50 points.

The number of awards shall not exceed 5% of the total graduating class. The candidates eligible shall have a grade point average of two or better.

The Utah State Agricultural College Science Medal, a gift of Director Emeritus William Peterson, is given each year to the student writing the best review of recent scientific research in either mathematics, physics, chemistry, geology, zoology, botany or astronomy.

Scholarship A's in the form of gold pins are given at the Awards and Honors Assembly to students who present evidence that their grades are all "A's" for three consecutive quarters of their residence. At least fifteen hours exclusive of basic Physical Education and basic Military Science must be carried. The grades of any quarter can be used but once towards a Scholarship A award.

Theta Chi Award. Ten dollars is awarded annually by the Theta Chi Women's Business Fraternity to the Junior girl registered in the Secretarial Science department who has the highest scholastic record in Commerce.

Delta Beta Chi Award. Ten dollars is awarded annually by the Delta Beta Chi Chemistry Fraternity to the Freshman or Sophomore Chemistry student who writes the best essay on some subject in the field of Chemistry.

The William Alger Award. A gold key is awarded annually by Alpha Epsilon Delta, premedical society, to the outstanding Freshman premedical or predental student. Scholarship, character and possibilities in the field of medicine or dentistry represent the basis for the award.

Awards Offered in the Graduate Division of Social Work

Louisa Y. Robinson National Women's Relief Society Scholarship. A gift of $5,000 has been made to the college by the General Board of the National Women's Relief Society for the purpose of creating a perpetual fund bearing the name of Louisa Y. Robinson, the annual earnings of which are to be given to a Latter-day Saint woman student eligible for admission to the Graduate Division of Social Work. A research paper is required. If the study takes the form of a thesis for a Master's degree including four quarters of residence the award, on the basis of present earnings, is $200. If a less comprehensive study is made which can be completed as a part of regular course work in nine months the award is $150. A transcript of credits and three letters of recommendation are necessary, one of which must be from the ward relief society president of the ward in which the student lives. One hundred dollars is payable May 1, and the rest on completion of the study.

One Graduate Tuition Scholarship of $80 is available to a student meeting the requirements for admission to the Graduate Division of Social Work.

An Annual Scholarship of $25 will be awarded by the Chi Omega Fraternity to the girl majoring or minoring in the Social Sciences who gives evidence of superior scholarship, and ability to make a contribution to organized group life.

The Committee of Awards shall be appointed by the Chi Omega Fraternity, each year from the teaching staffs of the departments of Sociology and Economics.

Danforth Foundation Home Economics Fellowships: The first, awarded jointly by the Danforth Foundation and the Ralston Purina Company to an
outstanding junior in the School of Home Economics. The award provides for two weeks' study of various business problems in St. Louis, followed by two weeks of leadership training at the American Youth Foundation on Lake Michigan.

The second, awarded by the Danforth Foundation to an outstanding freshman in home economics. The award provides two weeks' leadership training at the American Youth Foundation Camp.

Awards and Scholarships Offered in School of Agriculture

The Leadership Challenge Cup is a gift to the College by Kenneth C. Ikeler and is to be awarded each year to a Senior student in Agriculture who has exhibited the greatest measure of constructive organization and leadership in the School of Agriculture through his College course.

Sears Roebuck and Company Scholarships:

For Freshmen in the School of Agriculture the company offers 25 scholarships of $100 each, $50 of which is paid at the beginning of the fall term and $25 at the beginning of the winter and spring terms. Winners are determined on the basis of scholarship, financial need, interest in agriculture, citizenship, moral integrity and rural leadership. The winner of this award who has the best scholarship record at the end of his freshman year will receive an additional scholarship of one or two more years. All applications must be submitted to the Dean of Agriculture before June 1. Application blanks and additional information may be obtained from the Dean's office.

For a graduate student in animal husbandry, a fellowship for research in sheep breeding with an annual stipend of $450 is given. Applications for this fellowship should be sent to the Dean of the School of Agriculture before April 1.

For graduate students in vocational agriculture, two fellowships of $200 each are offered to prospective teachers with outstanding records in scholarship and leadership to do graduate work in preparation for teaching agriculture.

Agricultural Experiment Station Research Fellowships. A number of the departments of the Agricultural Experiment Station offer annually one or more research fellowships for graduate students properly qualified to assist in conducting original research. Holders of these fellowships are permitted to carry on graduate work toward the master's degree. The annual stipend varies from $400 to $600.

Canning Crops Research Fellowship. This fellowship is sponsored by the Utah Canners' Association, the American Can Co., the Anaconda Sales Corp., the American Potash Institute, and the Nitragin Co. It is awarded annually to a graduate student who is qualified to proceed with research work in soil fertility and canning crops investigations. It pays an annual stipend of $600.

Utah Agricultural Marketing Service Fellowship for graduate research in the marketing of fruits and vegetables. This fellowship carries a stipend of $500.

The Rollo M. Rich Memorial Scholarship is awarded annually to an outstanding student of the senior college who is a major in the school of Agriculture and who has filled a mission for the L. D. S. Church or has otherwise participated in activities of the L. D. S. Church.

Applications for these fellowships should be filed with the Dean of the School of Agriculture on or before April 1.

The Danforth Summer Fellowship is awarded jointly by the Danforth Foundation and the Ralston Purina Mills to an outstanding member of the Junior class in the School of Agriculture. The award covers expenses for two weeks in St. Louis and vicinity, and two weeks of leadership training at the American Youth Foundation Camp on Lake Michigan. Forty students from as many colleges are awarded this fellowship. Additional information and application blanks may be obtained from the Dean's office.
Swift and Company Essay Contest. Each year Swift and Company conducts an essay contest, the winner of which is awarded a free trip to Chicago at the time of the International Livestock show where he will spend approximately a week studying the various phases of the meat packing industry. All essays must be submitted in the Dean's office on or before November 1. Further additional information concerning this contest may be obtained from the Dean's office.

The American Rambouillet Sheep Breeders' Association Challenge Cup was donated to the Animal Husbandry Department by the American Rambouillet Sheep Breeders' Association, to be presented each year to the student showing the greatest efficiency in fitting and showing Rambouillet sheep.

The Ogden Union Stock Yards Challenge Cup is a gift of the Union Stock Yards Company of Ogden and is to be awarded each year to the student who shows the most proficiency in the judging of beef cattle.

The Hawaiian Steamship Company's Challenge Cup is a gift of the Hawaiian Steamship Company and is to be awarded each year to the student who shows the most proficiency in the judging of beef cattle.

The Ogden Union Stock Yards Challenge Cup is a gift of the Union Stock Yards Company of Ogden and is to be awarded each year to the student who shows the most proficiency in the judging of beef cattle.

The John K. Madsen Challenge Cup is a gift of John K. Madsen, Mt. Pleasant, Utah, and is awarded each year to the student who shows the greatest proficiency in the judging of sheep.

College Citizenship

The college confidently expects that its students will at all time exemplify those standards of dependability, honor, and integrity which characterize responsible citizens.

"Students placed on probation for conduct unbecoming to college men and women are not eligible to be elected or appointed to any student body office, or to hold office in the student body organization, or to represent the college as principals in college dramatic, musical events, or as members of college forensic or athletic teams, or any student function."

Student Health Service

The College is interested in the physical welfare of its students. Services of a doctor and a full time registered nurse are available free of charge to the students. Each new student, upon entering the College, receives a thorough medical examination, and whenever necessary, students are re-examined and advised regarding their physical condition.

Speech Clinic

Remedial training is available for those individuals possessing speech handicaps. The types of problems handled include stuttering or stammering, stage fright, slow speech development in children, baby talk, lisping and other disorders of articulation, cleft palate and hare lip, speech, paralytic speech, foreign accent and dialectic speech, "nervous" speech conditions, nasal speech, high or thin voices, etc. All college students who have defective speech should register with the speech clinic where they will receive immediate attention. This training is also available to non-college students.

Psychological Clinic

The Department of Psychology conducts a psychological clinic whose services are available to students in the College, to the public schools of the state, to child welfare and other public welfare agencies, to juvenile courts and adult probation and parole officers, and to private individuals who may apply for them.

The services include:
1. Educational and vocational guidance.
2. Diagnosis and guidance for gifted, subnormal, and delinquent children.

3. Diagnosis and recommendations for treatment of conduct and personality maladjustments.

4. Diagnosis and recommendations for remedial instruction for achievement difficulties in reading, language, arithmetic, general study habits, and other subjects.

5. Assistance to speech correctionists in the diagnosis and corrective treatment of speech defects.

Except for students registered in the College a fee of approximately $3.00 per hour of professional service will be charged, payable to the Secretary-Treasurer of the College. For the participation of trained student help there will be no charge.

The Guidance Program

The guidance organization in the College is prepared to help students plan their educational and vocational careers wisely and to aid them in acquiring and maintaining personal efficiency and mental health while in pursuit of their college goals.

The details of the College's provisions for achieving these purposes are given in the various parts of the catalog.

Every entrant, including vocational rehabilitation students and other ex-service men and women, at the Utah State Agricultural College is assigned by the Office of Student Guidance in cooperation with the Registrar's office to the faculty adviser best qualified to help him in planning his educational program and in counseling him on such educational, vocational, social, recreational and personal problems as may arise. The aims of the guidance program are (1) to help students plan educational programs (vocationally, socially, recreationally, and culturally) suited to their abilities, interests, and opportunities; (2) to aid them continuously in the successful pursuit of their college goals by guiding them in the development of habits of personal efficiency and mental health; and (3) to cultivate friendly relationships between adviser and students and among students.

These purposes are to be accomplished through (1) pre-registration guidance for students who visit the campus during the month prior to registration; (2) careful guidance in planning study and activity programs at registration periods and during the quarter preliminary to registration; (3) studying each student and his opportunities through keeping up and periodically analyzing a cumulative (from high school through college) Adviser's Record for each student; (4) conferences (scheduled and as individual needs occur) with students on problems of guidance and adjustment; (5) testing, both survey and individual; (6) presenting through an orientation course, (a) general information on adjustment to activities in the College and life in the community, (b) information on opportunities and qualifications necessary for successful participation in the vocations for which the College trains workers; (7) recommendations to the Deans' and Directors' Council of additions and modifications of curricula, which are found in the counseling of students to be needed to accomplish their educational goals; and (8) coordination with other student welfare agencies on the Campus, including the Health Service, Student Activities Organization, the Physical Education Department, the offices of the Dean of Students and the Dean of Women, and the Graduate Division of Social Work.

Special Care of Young Women

Each sorority house is supervised by a competent house mother who concerns herself with the welfare of the women who are living at the house. The house mother is directly responsible to the Dean of Women who, in turn, is responsible for the conduct of women students and supervises their living quarters. Women living at the Women's Residence Halls are under the guidance of matrons responsible to the Dean of Women. The Dean of Women entertains an active continuing interest in the welfare of the women.
SCHOOL OF AGRICULTURE
R. H. WALKER, Dean

Agriculture ................................................................. 62
Agricultural Economics and Marketing ............................. 63
Agronomy and Soils .......................................................... 65
Animal Husbandry .......................................................... 67
Bacteriology and Biochemistry ......................................... 69
Botany and Plant Pathology .............................................. 71
Dairy Husbandry and Manufacturing .................................. 73
Horticulture ................................................................. 74
Landscape Architecture ..................................................... 76
Poultry Husbandry .......................................................... 77
Vegetable Crops .............................................................. 78
Veterinary Science ........................................................... 79
General Information

The postwar period will offer many opportunities for men and women who are well trained in one of the various fields of agriculture. In crop and livestock production, in marketing, in extension work, in teaching, in research, and in the various commercial fields connected with agriculture the need of trained personnel has never been greater. Increased agricultural production to supply food for the starving peoples of a war-torn world will continue to be a major problem for a number of years to come. Better production methods, higher yielding crops and breeds of livestock, better methods for the control of pests and diseases will be important in the rehabilitation of territories despoiled by the war. These problems must be solved by men trained in agriculture. Thus a great opportunity and a challenge is open to those students with vision who have an interest and aptitude for agriculture and who are willing to prepare themselves properly.

The Utah State Agricultural College is well equipped to train young men to meet these needs. Along with the technical courses in crop and animal production, agricultural economics and rural social science, soil management, and others, instruction is offered in mechanic arts and in the basic sciences that underlie practical agriculture. Training is also given simultaneously in English, literature, history, political science, music and the fine arts, hygiene and public health, education and the social sciences, all of which supplement the practical and scientific agricultural training and contribute to the general education of students to a level comparable to that attained by students in other fields.

Instruction includes not only the principles, but also the practice of agriculture. The College farms, dairy manufacturing plant, livestock barns, plant breeding plots, gardens, orchards and technical equipment offer an excellent opportunity for the combination of scientific study and practical experience. Outstanding representatives of the principal livestock and poultry breeds best adapted to Utah conditions afford a "standard of perfection" in desirable type and form for the student judge.

The College maintains one of the outstanding breeding herds of Hereford cattle in the Intermountain west made up of the bull, Advance Domino III, donated to the Utah Cattle and Horse Growers' Association by Sears Roebuck and Company, and thirty-five breeding females. The College also has a small, but good quality, herd of beef Shorthorn cattle. The College dairy herd is made up of purebred Jersey and Holstein-Fresian cattle. Five registered Percheron mares and two registered Percheron stallions, a small herd of Duroc hogs, Rambouillet, Corriedale, Columbia, Hampshire and Southdown breeds of sheep and S. C. White Leghorn chickens offer teaching material for classes in animal husbandry, and in addition many students are given experience in the care and handling of the livestock.

The Agricultural Experiment Station is bringing to light better methods of feeding, more productive systems of cropping, more valuable strains of fruits, crops and livestock, more remunerative systems of marketing agricultural products, and other improvements. These investigations are studied by the students first hand, and through the system of student employment, a number take an active part in conducting the research work of the Experiment Station. This arrangement gives, to the students, clearer insight into scientific methods and, at the same time, valuable, practical experience. Special attention is given to improved methods in the various operations of farming and farm building, in the use of tools and machinery, and in the management of livestock and crops.

The great practical value of the various curricula of the School of Agriculture is shown by the records of those students who have completed them and who have gone back to the farm, or who, after graduation, have taken up the work of specialists as teachers or investigators. Such men are proving themselves leaders in their chosen lines of work.

Students entering the School of Agriculture may pursue one of four courses leading to the degree of Bachelor of Science in Agriculture.
The course in general agriculture is designed to meet the needs of those students who desire a broad general training in scientific and practical agriculture, and wish to qualify for general farming, for extension service, county agent, or agricultural inspection work, or other types of general agriculture. The curriculum for this course is partially prescribed as outlined on this page.

Unless the student has definitely determined the specific phase of agriculture in which he wishes to major it is usually best for him to follow the curriculum in general agriculture. Then, at a later date, if he should decide to major in one of the special fields, he can arrange to do so without serious complications.

COURSE OF STUDY FOR MAJORS IN GENERAL AGRICULTURE

The student majoring in general agriculture will be required to take at least one course in basic agriculture each quarter with a minimum of 12 hours during the freshman year. The prescribed courses and minimum number of hours in the various fields are as follows:

(a) Minimum Requirements in Following Divisions:

<table>
<thead>
<tr>
<th>Division</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics</td>
<td>9</td>
</tr>
<tr>
<td>*Plant Sciences</td>
<td>26</td>
</tr>
<tr>
<td>**Animal Sciences</td>
<td>26</td>
</tr>
<tr>
<td>†Agricultural Engineering</td>
<td>9</td>
</tr>
<tr>
<td>**TOTAL</td>
<td>70</td>
</tr>
</tbody>
</table>

(b) Exact Science, Biology, General Social Science, and Languages.

**EXACT SCIENCE**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math. 34, and 35</td>
<td>8</td>
</tr>
<tr>
<td>Chem. 10, 11 &amp; 12 or equiv.</td>
<td>15</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>23</td>
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</table>

**BIOLOGY**

<table>
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<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany 21 &amp; 22</td>
<td>6</td>
</tr>
<tr>
<td>Bacteriology 1 &amp; 2, or</td>
<td>5</td>
</tr>
<tr>
<td>Zoology 2, or</td>
<td>5</td>
</tr>
<tr>
<td>Physiology 4</td>
<td>5</td>
</tr>
<tr>
<td>Zoology 108</td>
<td>4</td>
</tr>
<tr>
<td>Botany 130</td>
<td>5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>25</td>
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**GENERAL SOCIAL SCIENCE**

<table>
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<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc. 10 or Pol. Sci. 10, or Hist. 17</td>
<td>3 or 5</td>
</tr>
<tr>
<td>Agr. Econ. 53a &amp; 53b</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>9 or 11</td>
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</table>

**LANGUAGES AND ART**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 10 &amp; 110</td>
<td>9</td>
</tr>
<tr>
<td>Language and Arts Group</td>
<td>8</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>17</td>
</tr>
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</table>

**TOTAL**

<table>
<thead>
<tr>
<th>Hour</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total hours prescribed</td>
<td>146</td>
</tr>
<tr>
<td>Elective</td>
<td>40</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>186</td>
</tr>
</tbody>
</table>

*Not more than 15 hours of the 26 to be taken in one department, and the total of 26 hours to be selected from each of the four departments: Agronomy, Horticulture, Landscape Architecture and Vegetable Crops. Soils 6 or 106 is required as part of the 26 hours.

**Not more than 15 hours of the 26 to be taken in one department, and the total of 26 hours to be selected from each of the four departments: Animal Husbandry, Dairy Husbandry and Manufacturing, Poultry Husbandry, and Veterinary Science.

†Agricultural Engineering 10 is required as part of the 9 hours.
SUGGESTED COURSES FOR MAJORS IN GENERAL AGRICULTURE

**AGRICULTURAL ECONOMICS**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>70—Farm Accounts</td>
<td>3</td>
</tr>
<tr>
<td>102—Prin. of Farm Mgt.</td>
<td>3</td>
</tr>
<tr>
<td>106—Land Economics</td>
<td>5</td>
</tr>
<tr>
<td>110—Marketing Agr. Prod.</td>
<td>3</td>
</tr>
<tr>
<td>113—Coop. Marketing</td>
<td>3</td>
</tr>
<tr>
<td>120—Agricultural Prices</td>
<td>3</td>
</tr>
</tbody>
</table>

**PLANT SCIENCES**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 or 106—Gen. Soils</td>
<td>5</td>
</tr>
<tr>
<td>1—General Farm Crops</td>
<td>3</td>
</tr>
<tr>
<td>101—Cereal Crops</td>
<td>3</td>
</tr>
<tr>
<td>102—Root &amp; Misc. Crops</td>
<td>2</td>
</tr>
<tr>
<td>103—Forage Crops</td>
<td>4</td>
</tr>
<tr>
<td>108—Soil Management</td>
<td>2</td>
</tr>
<tr>
<td>118—Weeds</td>
<td>2</td>
</tr>
</tbody>
</table>

**Horticulture:**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1—Tree Fruit Prod.</td>
<td>4</td>
</tr>
<tr>
<td>8—Small Fruit Prod.</td>
<td>3</td>
</tr>
</tbody>
</table>

**Vegetable Crops:**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1—Veg. Prod.</td>
<td>4</td>
</tr>
<tr>
<td>105—Major Veg. Prod.</td>
<td>4</td>
</tr>
</tbody>
</table>

**Landscape Architecture:**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3—Elem. Lands. Arch.</td>
<td>3</td>
</tr>
</tbody>
</table>

**Range Management:**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>160—Prin. Mg. Range Lands</td>
<td>5</td>
</tr>
</tbody>
</table>

*Students taking Dairy 1 need not take 109.  
**Students taking Poultry 1 & 2 need not take 101 & 102.

**AGRICULTURAL ENGINEERING**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11—For. &amp; Bench Met.</td>
<td>2</td>
</tr>
<tr>
<td>10a—Farm Mach.</td>
<td>3</td>
</tr>
<tr>
<td>10—Irrig. Prin. &amp; Pract.</td>
<td>4</td>
</tr>
<tr>
<td>105—Woodwork</td>
<td>5</td>
</tr>
<tr>
<td>14a—Farm Motors</td>
<td>3</td>
</tr>
</tbody>
</table>

**ANIMAL SCIENCES**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Husbandry:</td>
<td></td>
</tr>
<tr>
<td>10—Feeds &amp; Feeding</td>
<td>5</td>
</tr>
<tr>
<td>15—Animal Breeding</td>
<td>3</td>
</tr>
<tr>
<td>110—Beef Production</td>
<td>3</td>
</tr>
<tr>
<td>120—Swine Production</td>
<td>2</td>
</tr>
<tr>
<td>125—Sheep Production</td>
<td>3</td>
</tr>
<tr>
<td>Dairying:</td>
<td></td>
</tr>
<tr>
<td>1st—Gen. Dairy</td>
<td>3</td>
</tr>
<tr>
<td>3—Gen. Dairy Ind.</td>
<td>3</td>
</tr>
<tr>
<td>6—Market Milk</td>
<td>3</td>
</tr>
<tr>
<td>109—Dairy Prod.</td>
<td>3</td>
</tr>
<tr>
<td>110—Dairy Prod.</td>
<td>5</td>
</tr>
<tr>
<td>Poultry:</td>
<td></td>
</tr>
<tr>
<td>101, 102**—Poultry Prod. &amp; Lab.</td>
<td>4</td>
</tr>
<tr>
<td>Veterinary Science:</td>
<td></td>
</tr>
<tr>
<td>10—Vet. Science</td>
<td>5</td>
</tr>
<tr>
<td>52—Clinic</td>
<td>1</td>
</tr>
</tbody>
</table>

**VEGETABLE CROPS:**

**Agricultural Sciences and Marketing:**

**Agronomy and Soils:**

**Animal Husbandry:**

**Dairy Husbandry and Manufacturing:**

**Horticulture:**

**Landscape Architecture:**

**Poultry Husbandry:**

**Vegetable Crops:**

He must also complete the following courses:

- Mathematics 34 and 35
- Chemistry 10, 11, 12, or 3, 4, 5
- Botany 21 and 22
- Zoology 2, or Bacteriology 1 and 2, or Physiology 4
- Agricultural Economics 53a and 53b
- Sociology 10 or 70, or Political Science 10, or History 17
- Language and Arts, 8 hours
- English 10 and 110
- Agronomy 6 or 106
- Agricultural Engineering 10

A total of 186 hours, 64 of which are of senior college grade, are required for graduation from the School of Agriculture.
TEACHER TRAINING COURSE IN VOCATIONAL AGRICULTURE

This course of study is designed to meet the needs of those students who are planning to teach vocational agriculture in rural high schools. In this curriculum, emphasis is given to practical farm experience and broad general training in the basic fields of agriculture and a consideration of the methods and techniques of training youth and adults in the vocation of farming. To be a successful teacher of vocational agriculture, an individual should enjoy public service, have the ability to work with people and influence their lives, complete a broad training in the major enterprises of agriculture, profit by a rich experience in farming, and know how to teach.

The broadness and extent of the training is such that this program is prescribed for the most part. To qualify for certification to teach vocational agriculture in a majority of the western states, the candidate must complete courses in the several fields of agriculture with the following minimums:

- Agricultural Economics: 15 hours
- Animal Production: 30 hours
- Crop Production: 30 hours
- Farm Mechanics: 15 hours

90 hours

PRESCRIBED COURSE OF STUDY FOR MAJORS IN VOCATIONAL AGRICULTURE

<table>
<thead>
<tr>
<th></th>
<th>Hrs.</th>
<th>Tot.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exact Science:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 34, Algebra</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Chem. 10, 11, 12</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td><strong>Biological Science:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Botany 21 and 22</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Bact. 1 &amp; 2 or Zoo. 2 or Physiology 4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Zoology 108, Agr. Ent.</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Physiology 108</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td><strong>Social Science:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychology 3, Elem.</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Soc. 10, Rural Soc., or Political Science 10, or History 17</td>
<td>3 or 5</td>
<td>11</td>
</tr>
<tr>
<td><strong>Language and Arts:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 10, 110, 112</td>
<td>12</td>
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<tr>
<td>Elective</td>
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<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Military Science &amp; P. E.:</strong></td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plant Production:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agron. 5, Soils</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Agron. 101, Cereal Crops</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Agron. 102, Root Crops or Veg. Crops 1</td>
<td>2 or 4</td>
<td></td>
</tr>
<tr>
<td>Agron. 103, Forage Crops</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Agron. 108, Soil Mgt. or Agron. 110, Soil Fert.</td>
<td>3 or 4</td>
<td></td>
</tr>
<tr>
<td>Hort. 1, Tree Fruit Prod.</td>
<td>4 28</td>
<td></td>
</tr>
<tr>
<td>Irrig. 10, Prin. &amp; Pract.</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Land. Arch. 3, El. Land. Arch.</td>
<td>3 30</td>
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<table>
<thead>
<tr>
<th></th>
<th>Hrs.</th>
<th>Tot.</th>
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</thead>
<tbody>
<tr>
<td><strong>Agricultural Economics:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>53a, 53b—Prin. Ag. Econ.</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>70—Farm Accts.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>102—Prin. Farm Mgt.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>113a—Farm Cooperatives, or 110—Mark. Agr. Prod. or 105—Agr. Finance</td>
<td>3 15</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Agricultural Engineering:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11—Forg. &amp; Bench Metal</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>15a—Farm Machinery</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>105—Farm Wdwk. &amp; Bldgs.</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>14a—Farm Motors</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>13—Farm Mach. Rep.</td>
<td>2 15</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td><strong>Animal Production:</strong></td>
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<td></td>
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<tr>
<td>An. Hus. 5 or 165 Lvsstk. Judg.</td>
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<td></td>
</tr>
<tr>
<td>An. Hus. 10, Feeds &amp; Feeding</td>
<td>5</td>
<td></td>
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<tr>
<td>An. Hus. 110, Beef. Prod.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>An. Hus. 120, Swine Prod.</td>
<td>2</td>
<td></td>
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<tr>
<td>An. Hus. 125, Sheep Prod.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Vet. Sc. 52, Vet. Clinic</td>
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<tr>
<td>Poultry 1 &amp; 2 or 101 &amp; 102</td>
<td>4</td>
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<tr>
<td>Dairy 110, Dairy Prod.</td>
<td>5 34</td>
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<tr>
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<td></td>
</tr>
<tr>
<td><strong>Education &amp; Psychology:</strong></td>
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<td></td>
</tr>
<tr>
<td>Psychology 102 &amp; 102b</td>
<td>5</td>
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<tr>
<td>Ed. 112, Prin. of Voc. Ed.</td>
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<tr>
<td>Ed. 113, Voc. Guidance</td>
<td>3</td>
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<tr>
<td>Ed. 114, Org. &amp; Ad. Sec. Ed.</td>
<td>3</td>
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<tr>
<td>Ed. 116, Articulation</td>
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<tr>
<td>Ed. 125, Meth. Teach, Agr.</td>
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<tr>
<td>Ed. 126, Pr. Teach, in Agr.</td>
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<td></td>
</tr>
<tr>
<td>Ed. 145, Safety Ed.</td>
<td>2 32</td>
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</table>
TECHNICAL COURSES IN AGRICULTURE

In order to meet the requirements of students who plan to do graduate work or to enter into a field of employment where technical training is required, a technical course is provided in each of the following fields: Agricultural Economics, Animal Husbandry, Bacteriology, Botany, Crops, Dairy Husbandry, Dairy Manufacturing, Horticulture, Landscape Architecture, Poultry Husbandry, Soils and Vegetable Crops. Students may register for these courses only upon permission and on the advice of the head of the department and permission from the Agricultural Council. Minimum requirements of six hours each in Plant Industry, Animal Industry and Agricultural Economics must be met by students taking these courses.

NON-DEGREE COURSE IN AGRICULTURE

The School of Agriculture also offers a two-year non-degree course in practical agriculture for those students who do not wish to take more than two years of college work. A student may register for any of the regular non-pre-requisite production, marketing and management courses in the School of Agriculture. Emphasis in these courses is placed on the practical problems confronted on the farm.

SUGGESTED COURSES OPEN TO STUDENTS IN THE NON-DEGREE COURSE IN AGRICULTURE

Agricultural economics 53a & 53b, 70, 102, 110
Agricultural engineering 10, 14a, 15a
Agronomy 1, 6
Animal husbandry 1, 10, 15
Dairy husbandry 1, 3
Horticulture 1, 8
Landscape architecture 3
Poultry husbandry 1 & 2
Vegetable crops 1
Veterinary science 1, 52

Besides completing a 20-hour major in either the plant sciences, the animal sciences, or agricultural economics, the student is required to take six hours in the groups in which he does not major. For example, a student majoring in animal science must complete in addition to 20 hours in his major field, 6 hours in plant science, 6 hours in agricultural economics, and 6 hours in agricultural engineering. He is also required to take the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>English 2</td>
<td>3</td>
</tr>
<tr>
<td>English 10</td>
<td></td>
</tr>
<tr>
<td>Math. 34</td>
<td>3</td>
</tr>
<tr>
<td>Pol. Science 10, or History 17</td>
<td>3 or 5</td>
</tr>
</tbody>
</table>

Students in the non-degree course must complete 90 hours of credit to obtain a certificate.

Agriculture

Faculties of Various Departments Make Up This Staff

Students wishing to major in General Agriculture should follow the suggested course of study given on page 59. Those interested in preparing themselves for teaching in Vocational Agriculture should be guided by the curriculum on page 61.

These courses are designed to give the student a broad general training in practical and scientific agriculture that will equip him for farming and rural leadership and at the same time prepare him for professional work in agriculture.

110. General Agriculture. Lectures and laboratory work in the various fields of General Agriculture designed especially for students preparing to teach in the rural schools. Five credits. Winter, Lect., M. W. F. 2; Labs., T. Th. 2-5.
Agricultural Economics and Marketing

(Administered jointly by the School of Agriculture and the School of Commerce)

W. P. Thomas, Professor; G. T. Blanch, H. H. Cutler, Associate Professors; Dee A. Broadbent, G. A. Carpenter, Assistant Professors.

Students majoring in the Department of Agricultural Economics and Marketing may be graduated from either the School of Agriculture or the School of Commerce. The choice of school in which to register should be determined by the field in which the student intends to do his minor work.

Those graduating from the School of Agriculture must satisfy requirements for graduation from that school in addition to agricultural courses prescribed by the major professor; those graduating from the School of Commerce must, in addition to satisfying the requirements for graduation from that school, include certain basic agricultural courses to be prescribed by the major professor.

In order to meet the requirements of students who plan to do graduate work or to enter into a field of employment where technical training is required, a special course has been provided for such students majoring in agricultural economics. Students satisfying requirements as prescribed for this course may graduate from either the School of Agriculture or Commerce. A schedule for this prescribed course may be obtained from the office of the Department of Agricultural Economics.

An adjustment in courses, sections, and subject matter may be made to accommodate returning soldiers and other students providing there is a sufficient number of students interested to warrant the change.

**Rural Economy**

53a and 53b. Principles of Economics. An introductory course in basic principles of economics with emphasis on those principles which are of particular importance in the field of agriculture and forestry. Three credits each quarter.

53a: Fall. Sec. 1, M. W. F. 10. Sec. 2, T. Th. 9, F. 12. Winter, Sec. 3, T. Th. 8, F. 12.

53b: Winter. Sec. 1, M. W. F. 10. Sec. 2, M. 12, T. Th. 11.

54. Principles of Agricultural Economics. An introduction to the field of agricultural economics with emphasis on the application of economic principles to the solution of agricultural problems. Three credits. Fall. M. 12, T. Th. 11.


230, 231, 232. Public Problems in Agriculture. Seminar courses designed to familiarize the student with the economic implications of problems confronting agriculture. Special references will be made to war and postwar problems in agriculture. Two credits. Fall, Winter and Spring, W. 3-5.

**Farm Management, Land Economics and Agricultural Finance**

70. Farm Accounts. Farm accounts and their application to the organization and management of farms and to the filing of income tax statements. A fee of $1.00 will be charged for materials supplied. Three credits. Fall, T. Th. 11-1.

102. Principles of Farm Management. A study of the principles underlying the organization, management, and financial success of farms. Rates of production, labor efficiency, combination of enterprises and farm layout will be discussed. A fee of $1.00 will be charged for materials supplied. Three credits. Fall and Winter. Fall, M. W. F. 9; Winter, M. W. F. 8.

106. Land Economics and Utilization. A study of the economic principles underlying the utilization, valuation and tenure of agricultural land. Attention is given to prevailing land policies and to methods and techniques involved in dealing with problems of land use. A fee of $1.00 will be charged for materials supplied. Five credits. Spring, Daily 9.

202. Advanced Farm Management. Designed primarily to give students advanced training and experience in farm management. Prerequisite: Ag. Econ. 102. A fee of $1.00 will be charged for materials supplied. Three credits. Spring, T. Th. 3-5.

206. Land Appraisal and Classification. A basic course in land appraisal and economic classification of land. Two credits. Spring, T. Th. 3-5.

Marketing and Prices


113a. Farm Cooperatives. A course in principles underlying the organization, operation and management of cooperative sales, purchasing and service associations. Three credits. Winter, T. Th. 11, F. 12.

113b. Analysis of Farm Cooperatives. For students who desire detailed work in organization and management of cooperatives. Prerequisite, 113a. A fee of $1.00 will be charged for materials supplied. Two credits. Winter, T. 2, F. 3-5.

114. Marketing Fruits and Vegetables. The production and marketing factors as they relate to the marketing of fruits and vegetables with special reference to Utah conditions. Three credits. (Not given in 1945-46.)

116. Marketing Livestock and Livestock Products. The production and marketing factors as they relate to the marketing of livestock and livestock products with special reference to Utah conditions. A fee of $1.00 will be charged for materials supplied. Three credits. Fall, M. W. F. 10.

120. Agricultural Prices. The relationship between agricultural and non-agricultural prices and income, together with the state and national agricultural outlook reports, will be given consideration. Three credits. Winter, M. W. F. 11.

121. Price Analysis. A study of statistical and other methods used in analyzing prices and other economic data. A fee of $1.00 will be charged for materials supplied. Three credits. Spring, M. W. F. 11.

Special Graduate Courses

210. Research Methods in Agricultural Economics. A fee of $1.00 will be charged for materials supplied. Three credits. Spring, M. F. 3-5.


215. Special Problems in Agricultural Economics. Any quarter. Time and credit arranged.
Agronomy and Soils

E. J. Evans, D. S. Jennings, D. W. Pittman, Professors; A. F. Bracken, D. W. Thorne, D. C. Tingey Associate Professors; H. B. Peterson, Assistant Professor; J. W. Carlson, Wesley Keller, D. F. McAllister,*

R. W. Woodward, Collaborators in Research, U.S.D.A.

All majors in Agronomy are required to take the following courses: Agronomy 101, 102, 103, 106, 108, and 110; Math. 46; Chem. 3, 4, 5; Botany 23 or 30; Bacteriology 1 and 2.

Majors in technical soils will be required to take the following courses: Chem. 102, 103, 121, 122; Math. 28; Physics 120, 121, 122; Agron. 115, 122, 125; and Geol. 3 in addition to courses listed for all majors.

Majors in technical crops will be required to take the following courses: Chem. 121 and 122, Botany 30 and 120 or 130, Agron. 109 and 115 in addition to those listed for all majors.

A laboratory fee of 50 cents per credit hour will be charged for each of the following courses: Agronomy 103, 110, 118, 121, 122, 125 and 218.


6. General Soils. An introductory course in soils with incidental study of soil fertility and management problems. A beginning course for students in agriculture and forestry, and for other students except majors in Agronomy and Soils who will take Agronomy 106 instead. Prerequisite, Inorganic Chemistry. Five credits. Fall, Spring, M. T. W. Th. 9; Lab., M. 2-5.

7 General Soils Laboratory. This course offers separate credit for the laboratory of Agronomy 6 for students who have had a general soils course without a laboratory. One credit. Fall, T. 2-5. Spring, M. 2-5.

Soil Microbiology. (See Bacteriology 100.)


102. Root and Miscellaneous Crops. Sugar beets, potatoes, cotton, tobacco, mangels, and other root crops are studied in detail as to cultural methods, market types, and commercial possibilities. Two credits. Winter, T. Th. 8.

103. Forage Crops. Alfalfa, clovers, grasses and other farm forages; classification and methods of production, harvesting and storage; meadow and pasture management, are discussed. Attention will be given to the place of these crops in rotation, soil conservation, and erosion control. An assessment will be made for field trips. Four credits. Spring, M. W. F. 8; M. 2-5.


105. Seed Analysis and Testing. Impurities of farm and garden seeds; methods of analysis and testing; the inspection and marketing of seeds. Not given except on application of three or more students. Any quarter. Two or more credits. Two or more laboratory periods a week. Time arranged.

106. Introductory Soil Science. The nature and properties of soils. Emphasis will be given to the physical, chemical and biological characteristics of the soil, profile development, maintenance of fertility, and the management under arid conditions. Designed especially for students majoring in Agronomy and Soils. Prerequisites: Chem. 3, 4, and 5 or equivalent; Bact. 1 and 2 or equivalent; Geol. 3; Physics. An assessment may be made for field trips. Five credits. Credit will not be allowed for both Agronomy 6 and 106. Fall, M. T. W. Th. 9; Lab. M. 2-5.

*On leave.
108. Soil Management. Consideration is given to cultivation, crop rotation, maintenance of organic matter, water relations, alkali, and other problems encountered in the management of arid soils. Prerequisite, Agron. 6 or 106. Three credits. Fall, M. W. F. 9.


110. Soil Fertility. Factors affecting the crop producing power of soils. The principles of fertilizer practice and soil testing. Four credits. Prerequisites, Agronomy 6 or 106. Winter, M. W. F. 10; Lab., M. 2-5.


117. Geography of Agriculture. A brief review of the fundamental principles of climatic controls. The principal agricultural regions of the world will be studied from the standpoint of their topography, climate, soils, crops, livestock, population and industries as related to agriculture. Three credits. Winter, M. W. F. 11.

118. Weeds. Identification of weed seeds and plants, the weed problems in agriculture and methods of control. Two credits. Fall, Th. 9; Lab., Th. 2-5. An assessment will be made for field trips.

120. Soil Technology. A study of soil profile characteristics, soil structure, consistency and moisture relationships and the mineral and organic constituents of soils as related to the production of range and forest plants. Prerequisites: Chem. 10, 11 and 12; and Agronomy 6 or their equivalents. Four credits. Winter, lecture, M. W. F. 8; Lab., T. 2-5.

122. Soil Survey and Land Classification. The influence of environmental factors on soil profile development, soil and land classification, the technique of mapping, and the preparation and interpretation of soil type, alkali and land classification maps. One field trip will be made to counties where the soil survey is completed. Prerequisite, Agron. 106 or previous arrangement with the instructor. Five credits. Spring, M. W. F. 11; Lab., W. 2-5, and one Lab. arranged. An assessment will be made for field trips.


125. Soil Conservation. Special problems of soil management and land policy in relation to soil conservation. Field practice in making soil conservation surveys and in planning farms on a soil conservation basis. An assessment will be made for field trips. Prerequisites, 8 hours in soils and 6 credit hours in farm crops. Three credits. Spring, T. Th. 8; Lab., M. or T. 2-5.


201. Advanced Farm Crops. This course will deal with the technical phase of recent advances in crop production. Three credits. Fall. Time arranged. Alternates with Agron. 209. Given only for three or more graduate students.

207. Advanced Soils. This course is designed to develop the science of pedology and is intended primarily for students expecting to specialize in soils. The physical and chemical nature of the mineral and organic particles, their relation to the phenomena of water-holding power, supply of plant nutrients, alkali, and soil structure. Special emphasis will be given to soil colloids.
and soil base exchange reactions. Three credits. Winter. Time arranged. Given only for three or more graduate students. 

209. Advanced Plant Breeding. The science and practice of plant breeding. Original papers and lectures. Three credits. Spring, two lectures, one laboratory, time arranged. This course alternates with Agron. 201. Jennings

212. Soils Seminar. Review of scientific literature relating to soil management, soil fertility, and soil technology. Required of all graduate majors. Fall, Winter, Spring. One credit each quarter. Time arranged. Soils Staff

213. Crops Seminar. Current scientific topics in farm crops. Required of all graduate majors. Fall, Winter, Spring. One credit each quarter. Time arranged. Crops Staff

215. Experimental Methods in Agronomic Research. The design of experiments, technique and methods of procedure, analysis and interpretation of results. Open to approved senior college students. Three credits. Spring, time arranged. Staff

218. Special Problems. Special problems in crop production, crop breeding, soil fertility or other phases of agronomic work will be investigated. Students will make a review of the literature on the problem and conduct experiments in the laboratory or on field plots. Any quarter. Time and credit arranged. Staff

Soil Physics. (See Physics 114.)

230. Research and Thesis. Outlining and conducting research in soils or farm crops and preparation of thesis. Any quarter. Two or more credits each quarter. Staff

Animal Husbandry

L. L. MADSEN, A. C. ESPLIN, G. R. HENDERSON, Professors; L. E. HARRIS, Associate Professor; JOHN V. CHRISTENSEN, Assistant Professor; *MILTON A. MADSEN, Instructor.

Students majoring in Animal Husbandry will be expected to complete courses Nos. 1, 5, 10 and 15, and 40 during the Freshman and Sophomore years, and during the Junior and Senior years at least 18 additional hours, including Courses No. 110, 125, 150, 160, and 165. Courses numbered 200 and above are designed for graduate students only.

For those students who plan to take up livestock production, county agent work, vocational agriculture teaching or some similar field of work, a minor in Agricultural Economics, Agronomy, Dairy Husbandry, Poultry Husbandry or Range Management is recommended.

Students who plan to do graduate work may be admitted to the technical course in Animal Husbandry by permission of the Head of the Department and the Dean. For such students a minor in Chemistry, Physiology or Zoology is suggested.

1. Introduction to Animal Husbandry. A course planned to give the student an understanding of livestock production in relation to other phases of agriculture in the United States and Utah, the influence of geographical location and conditions upon livestock production, the various types of farm animals and the functions performed or products produced, and an introduction to the important factors in the successful production of livestock. Three credits. Fall, M. W. 8; Lab., Th. or F. 2-5. Christensen

5. Livestock Judging and Selection. A study of animal form and its relation to the function of the animal. Emphasis is placed on the evaluation of the live animals in terms of their probable value for the production of meat, wool or work. Emphasis will be placed on judging for both commercial and showing purposes. Three credits. Spring, M. W. F. 2-5. Christensen

*On leave.
10. Feeds and Feeding. A study of the differences in digestive tracts of farm animals and the physiology of digestion and feed utilization, the composition of feeds, the balancing of rations, and a brief discussion of the feeding of cattle, horses, sheep and swine. Five credits. Winter, Daily 9; Spring, Daily 8.

15. Fundamentals of Animal Breeding. A study of the principles of livestock improvement, including physiology of reproduction, heredity, variation, selection, inbreeding, cross breeding and other closely related phases of the subject. Three credits. Fall, M. W. F. 9; Winter, M. W. F. 10. Christensen

40. Fitting and Showing Livestock. A study of current methods of fitting and training livestock for showing. Each student will prepare one animal for show and exhibit it in the fitting and showing contest held during the spring quarter. One to two credits. (One credit a year. May be repeated.) Spring, time arranged.

110. Beef Production. A study of the factors involved in the economic production of beef cattle, including organization of the enterprise, breeds of beef cattle, selection of suitable breeding stock, production of maximum crop, handling and feeding of animals of different ages on the range and in the feed lot, and the marketing of surplus stock. Prerequisite, A.H. 10. Three credits. Fall, M. W. F. 9. Christensen

115. Horse Production. A study of the factors involved in the economic production and use of draft and light horses, including breeds of horses, breaking and training, feeding, breeding, housing, handling and marketing. Prerequisite, A. H. 10. Two credits. Winter, M. W. 11. Christensen

120. Swine Production. A study of systems of production with emphasis on those suited to western conditions, breeds of swine, the management and feeding of the breeding herd, and feeding for market. The relation of the industry to dairy farming is discussed. Prerequisite, A. H. 10. Two credits. Winter, T. Th. 11. Christensen

125. Sheep Production. A study of both range and farm sheep, with emphasis on range production. Includes methods of production of lambs and wool, grading and marketing practices, feeding and studies of the breeds of sheep and their adaptation to the different husbandry practices. Prerequisite, A. H. 10. Three credits. Winter, M. W. F. 10; Spring, M. W. F. 9. Esplin and Christensen

150. Animal Nutrition. Attention will be given to various fundamental phases of animal nutrition, including protein, carbohydrate, fat and mineral metabolism, vitamins, content and deficiencies of range forage, and feed and forage poisoning. Prerequisites: Chem. 10, 11, 12 (or equivalent), Hus. 10, or Bact. 111. Four credits. Fall, M. T. W. F. 9. L. Madan

155. Advanced Animal Breeding. Attention will be given to various fundamental phases of physiology of reproduction and genetics, and the application of principles learned to problems arising in breeding operations. Prerequisite, A. H. 15, Zool. 112. Three credits. Spring, M. W. F. 10. L. Madan

160. Livestock Production Problems. Attention will be given to various problems in livestock production, particularly those existing in Utah. Students will be expected to apply knowledge acquired in previous courses in the solution of problems they will face in the field after graduation. Prerequisite, A. H. 110 and 125. Three credits. Winter, M. W. F. 9. Christensen

165. Advanced Livestock Judging. This course is a continuation of training begun in A. H. 5, and is designed to give students intensive training in livestock judging and selection. The Livestock Judging Team will be selected from among the students taking this course. Prerequisite, A. H. 5 Three credits. Fall, M. W. F. 2-5. Christensen

175, 275. Wool Technology. A study of the methods of marketing and manufacturing of wool, and of the various laboratory techniques used in the study of wool. Methods of grading, scouring, and measuring length, diameter, crimp, density, tensile strength and other characteristics are included. Prerequisite, A. H. 125. Three credits. Winter, T. Th. 10; Lab. Th. or F. 2-5. Esplin and Christensen
200. Problems in Animal Breeding. This course will consist of special assignments, reports and discussions. Students will be expected to review literature in various phases of animal breeding, and to prepare a comprehensive and critical review of at least one phase of the subject. Two to six credits. Fall, Winter, or Spring. Time arranged. Staff

210. Problems in Animal Nutrition. Same as A. H. 200, except work will be in animal nutrition. Two to six credits. Fall, Winter, or Spring. Time arranged. L. Madsen

220. Problems in Animal Production. Same as A. H. 200, except work will be in animal production. Two to six credits. Fall, Winter, or Spring. Time arranged. Staff

230. Animal Breeding Research. Students will be expected to outline a research problem in some phase of animal breeding, making a critical review of pertinent literature, collect and analyze the necessary data and prepare a report of the work done. This work may be the thesis material for the M.S. degree, or may be carried out for graduate credit apart from the thesis. Two to five credits. Fall, Winter, Spring. Time arranged. Staff

240. Animal Nutrition Research. The same as for A.H. 230, except that research will be some phase of animal nutrition. Two to five credits. Fall, Winter, Spring. Time arranged. L. Madsen

250. Animal Production Research. The same as for A.H. 230, except that research will be in some phase of animal production aside from breeding or nutritional problems. Two to five credits. Fall, Winter, Spring. Time arranged. Staff

260. Animal Husbandry Seminar. Round table discussion of topics of current interest. Graduate students and staff will participate. Assignments will include reviews of literature on various topics in animal breeding, nutrition and production, reports on current literature, and presentation of results of experiments being conducted in the Department. One credit (may be repeated). Fall, Winter, Spring. Time arranged. Staff

Bacteriology and Biochemistry
Administered jointly by the School of Agriculture and the School of Arts and Sciences

J. E. GREAVES, Professor; K. R. STEVENS, Associate Professor; L. W. JONES, Assistant Professor.

See pages 43 and 44 for courses that may satisfy group requirements.

Students majoring in the Department of Bacteriology and Biochemistry should complete Physics 6, 7, or 21, 22; Mathematics 46; Chemistry 12 or 122; Botany 21, 22; Zoology 4; and Bacteriology 1, 2, 20, 107, 109, 110, 111, 112.

1. Elementary Bacteriology. Deals with the biology and significance of bacteria and other microorganisms; their morphology and physiology; and introduces the fundamental principles governing the bacteriology of water, sewage, milk, food sanitation, communicable diseases, etc. Where possible this course should be accompanied by Bacteriology 2. Four credits. Fall, M. T. Th. F. 9, 11. Winter, M. T. Th. F. 10, 11. Spring, M. T. Th. F. 11. Staff

2. Elementary Bacteriology Laboratory. Experiments on the more important phases of Elementary Bacteriology. One credit. Fall, Winter or Spring, W. or F. 2-5. Staff

10. Engineering Bacteriology. Consideration is given to those fundamental and principles of bacteriology which are required in special phases of engineering. One lecture and two 3-hour laboratory periods each week. Three credits. Spring, T. 1; Lab., T. Th. 2-5. Stevens

20. Bacteriology Technique. Training in advanced experiments. Open to qualified students. Two credits. Fall, M. W. 2-5. Staff
100. Soil Microbiology. Microorganisms are considered in relation to soil fertility. Graduate students who have taken Bacteriology 111 may arrange with the professor in charge for graduate credit, and register for 100. When possible this course should be accompanied by Bacteriology 101. Prerequisites: Bacteriology 1, 2; Agronomy 6 or 106; Organic Chemistry. Three credits. Winter, M. W. F. 11.

101. Soil Microbiology Laboratory. Experiments to demonstrate the fundamentals discussed in the lecture course. Two credits. Winter, T. Th. 2-5.

102. Industrial Microbiology. The relation of microorganisms to industrial fermentations. Prerequisites: Bacteriology 1, 2; Organic Chemistry. Three lectures; two three-hour laboratory periods. Five credits. Winter, M. W. F. 8.

104. Dairy Bacteriology. The microorganisms of milk and dairy products and their relation to the production, spoilage, and sanitation of such products. Prerequisites, Bacteriology 1, 2. Three credits. Fall, M. W. F. 8.

105. Dairy Bacteriology Laboratory. Experiments to demonstrate the fundamentals discussed in the lecture course. Two three-hour laboratory periods. Two credits. Fall, T. Th. 2-5.

106. Pathogenic Bacteriology. Deals with the properties and characteristics of pathogenic microorganisms and their relation to the cause, prevention, and control of the infectious diseases. Prerequisites, Bacteriology 1, 2. Three lectures; two three-hour laboratory periods. Three or five credits. Spring, M. W. F. 8, M. W. 2-5.

107. Systematic and Determinative Bacteriology. Largely individual work in isolating, identifying, and classifying bacteria. Prerequisite, Bacteriology 1, 2. Two credits. Spring, M. W. 2-5.

108. Chemical Bacteriology. Composition of and transformations due to bacteria. Prerequisites: Bacteriology 1, 2; Organic Chemistry. Two credits. Fall, M. W. 1.

109. General Bacteriology. A more advanced study of various phases of bacteriology introduced in Elementary Bacteriology 1. Prerequisite, Bacteriology 1. Two credits. Winter, T. Th. 9.

110. Advanced Bacteriology. Special phases of bacteriology. Prerequisites, Bacteriology 1, 2; Organic Chemistry. Two credits. Spring, M. W. 1.


112. Biochemistry Laboratory. Experiments to accompany Bacteriology 111. Two credits. Spring, T. Th. 2-5.

113, 114, 115. Advanced Biochemistry. A study of the chemical transformations going on in the animal body. The class will be conducted much as a seminar. Graduate students may arrange with the professor in charge for graduate credit, and register for 213, 214, 215. Two credits each quarter. Fall, Winter, and Spring, T. Th. 1.

120. Food Microbiology. A study of the microorganisms involved in food production, distribution, and preservation. Prerequisites: Bacteriology 1, 2; Organic Chemistry. One lecture; two three-hour laboratory periods. Three credits. Winter, T. 1; Lab., T. Th. 2-5.


207. Research. The laboratory is especially equipped and library facilities are adequate for advanced students in bacteriological and biochemical investigations in agriculture, household science, the industries, sanitary science and veterinary science. One to five credits. Any quarter. Time arranged.

Botany and Plant Pathology

Administered jointly by the School of Agriculture and the School of Arts and Sciences

B. L. Richards, Professor; F. B. Wann, Associate Professor; Arthur H. Holmgren, W. S. Boyle, Assistant Professors; Robert K. Gerber, Research Assistant; Bassett Maguire, Curator New York Botanical Garden, Non-Resident Professor; H. L. Blood, Collaborator, U.S.D.A.

In addition to course work, the Department of Botany offers special opportunity for research and graduate study in plant taxonomy, plant physiology, plant anatomy, and plant pathology. The research and graduate possibilities in plant pathology are greatly augmented through the cooperation of the United States Department of Agriculture.

See pages 43 and 44 for courses that may satisfy group requirements.

REQUIREMENTS FOR A MAJOR IN BOTANY OR PLANT PATHOLOGY

**Botany 21, 22, 23 General Botany**
- Bot. 21, 22, 23 General Botany
- Bot. 30 Taxonomy
- Bot. 116 Micro-Technique
- Bot. 117 Plant Anatomy
- Botany 21, 22, 30, 120 and 130 or equivalent required for teaching major.

Recommended additional courses for the following major fields:

**Plant Pathology**
- Bot. 121 Water Relations
- Bot. 131 Field Crop Diseases
- Bot. 135 Fruit Crop Diseases
- Bot. 140 Forest Pathology
- Bot. 151 Mycology

**Taxonomy**
- Bot. 121 Water Relations
- Bot. 108 Agroecology
- Bot. 121 Water Relations
- Bot. 224 Advanced Physiology

1. Principles of Biology. A fundamental course in the basic life principles as illustrated in both plant and animal forms. Special attention will be given to the nature and structure of protoplasm, differentiation in plant and animal cells, adaptation, development and reproduction, heredity and evolution, types and phylogenetic relationships as exhibited in the big groups of plants and animals. For junior college students except those who may elect Botany 21, 22, 23, or Zoology 3 and 4. Five credits. Fall, Section 1, Daily 9.

Staff in Botany

21, 22, 23. General Botany. A general course in the fundamental principles of plant biology dealing with the structure, nutrition, growth, reproduction, and relationships of plants. Continuous through three quarters. Consideration will be given successively to: anatomy and functions of the flowering plants; comparative study of representatives of the plant kingdom from an evolutionary point of view; inheritance; and recognition of important vascular plant families. Three credits each quarter. Fall, Winter and Spring. Two lectures, one Lab. Lect. T. Th. 10; Lab., Daily, 2-5. 

Boyle

Students majoring in General Agriculture can satisfy their botany requirements by completing Botany 21 and 22.

30. Taxonomy of Vascular Plants. A fundamental course dealing with the kinds, relationships, and classifications of the vascular plants chiefly of this region. Prerequisites, Botany 21, 22, 23. Five credits. Spring, T. Th. 9; Lab., M. W. 2-5 or T. Th. 2-5.

Holmgren

104. Taxonomy of Poisonous Plants. A course which deals with the recognition, distribution, and ecology of the poisonous plants, native and introduced, which occur in the intermountain West with particular emphasis upon those found in the state of Utah. Prerequisite, Botany 30. Two credits. Winter, M. 10; Lab., M. 2-5. 

Holmgren
108. Agrostology. A taxonomic study of native and imported grasses of the western ranges. Special attention given to species playing an important part in grazing and soil binding. Prerequisites, Botany 21, 22, 23, 30. Four credits. Winter, Lect., T. Th. 11; Lab., T. Th. 2-5. Holmgren.


117. Plant Anatomy. A detailed study of structure of vascular plants. Structure is consistently correlated with function. Interpretation of laboratory materials is emphasized. Prerequisites, Botany 21, 22, 23. Four credits. Spring, Lect., T. Th. 1; Lab., T. Th. 2-5. To alternate with Botany 116.

120. Elementary Plant Physiology. A course dealing with fundamental principles of absorption, mineral nutrition, food manufacture, metabolism, translocation, and growth. Prerequisites, Botany 21, 22, 23, and Chemistry 10 or 121. Five credits. Winter, M. W. F. 9; Lab., T. Th. 8-11. West.

121. Water Relations of Native Plants. Consideration of rooting habits, osmotic pressure, transpiration, and water requirements of native plants in relation to distribution and adaptation to environment. Prerequisite, Botany 120. Three credits. Winter, M. W. F. 11.

130. Principles of Plant Pathology. Fundamental principles underlying diseases in plants. The types of diseases and methods of study are such as will give the student a comprehensive view of the subject of Plant Pathology. Prerequisites, Botany 21, 22, 23. Five credits. Fall, Lect., M. W. F. 11; Lab., M. F. 2-5. Richards.


140. Forest Pathology. Study of the nature, cause, and control of diseases affecting forest trees. Factors inducing loss in forest products are also emphasized. Prerequisites, Botany 21, 22, and 23. Four credits. Winter, Lect., W. F. 10; Lab., T. Th. 9-12. Richards.


160, 161, 162. Laboratory Methods. Open to qualified senior or graduate students majoring in Botany. One credit each quarter. Fall, Winter, Spring. Time arranged. Graduate credit may be obtained by registering for 260, 261, 262.

221. Pathological Technique. Special methods as applied to Plant Pathology, Physiology, and related subjects. Students may register for this course only by special permission. Four credits. Time arranged. Winter. Richards and Warner.


234, 235, 236. Special Problems. Open to qualified students majoring in Anatomy, Taxonomy, Plant Physiology, or Plant Pathology. Fall, Winter, Spring. Two to four credits. Time arranged.


250. Research. Open to all qualified college students in Botany and Plant Pathology. Any quarter. Time and credit arranged.

Plant Ecology. (See Range Management 126.)
Dairy Husbandry and Manufacturing

B. Caine, A. J. Morris, Professors; G. Q. Bateman, Associate Professor; Lyman Rich, Assistant Professor; J. E. Packer, Research Assistant. Lyman Rich, Extension Dairyman.

Students majoring in Dairy Husbandry must complete the following major courses for graduation: Dairy 1, 5, and 6; An. Hus. 10, 150, 155, as well as all other courses listed in Dairy Production. Chem. 107 and Bact. 104 will also be required.

A suggested course is set up for students majoring in Dairy Manufacturing. Students should study this course rather carefully and adhere to it as closely as possible. It is expected that students spend at least six months in a commercial dairy manufacturing establishment before graduation. It is strongly recommended that more than six months be spent in dairies if possible. This can usually be arranged by procuring summer work through the department. Very good cooperation exists between the department and the commercial dairies, and frequent trips are made to them during this course of study.

There is a good demand in the technical field of dairying for students who have had advanced training.

An opportunity is offered to do graduate work with an application in the field of chemistry, biochemistry, genetics, bacteriology or economics.

1. General Dairy Husbandry. Designed for students who desire a short general course in Dairy Husbandry. Taught for the students majoring in Dairy Husbandry as well as any student in the School of Agriculture. The following topics will be considered: History and present status of the dairy industry; starting dairy herds; breeds of dairy cattle; cow testing associations; club work; study of herd records; calf feeding; general principles of feeding management and housing of dairy cattle. Lab., Judging dairy cattle. Three credits. Winter, Spring, T. Th. 9; Lab., Th. 2-5.

2. Principles of Dairy Industry. A general course introductory to all courses in Dairy Manufacturing and adapted to students taking general agricultural work. It includes the history and development of the dairy industry; definite study of the secretion of milk, its composition, properties and food value; separation and handling of milk; the use and operation of Babcock tests; and a brief study of butter, cheese, ice cream, and of dairy arithmetic. Three credits. Winter. T. Th. 10; Lab., W. 2-5.


5. Dairy Practice. A course for special or short course students only. Practice in plant manufacture will be emphasized. Any quarter. Time and credit arranged.

6. Breeds of Dairy Cattle. Study of history and development of all breeds of dairy cattle; special emphasis on the various families within the breeds; requirements for official testing; pedigree and herd book study. Four credits. Fall, M. W. F. 9; Lab., M. 2-5.


8. Manufacture of Butter. Receiving and grading of milk and cream. Neutralization and pasteurization of cream. Manufacture, packing, and grad-
ing of butter under commercial conditions. Quality and composition of butter under commercial conditions. Quality and composition
will be emphasized. Five credits. Winter, M. T. W. Th. 8; Lab., T. 2-5. 

103. Manufacture of Cheese. A study of the factors involved in the manufacture of cheese of the cheddar and other types. Classification, statistics, curing, marketing, and factory organization will also be studied. Five credits. Fall, M. W. F. 10; Lab., F. 11-5.

105, 106, 107. Management and Operation of Dairy Manufacturing Plants. Personnel problems, advertising, selling, managerial use of records, and other principles underlying successful management and operation are considered. All operations of the creamery are conducted by this class. Application for admittance must be made in writing. Two credits each quarter. W. 1; Lab. arranged.


115. Seminar. Discussion and reports of current literature. Any quarter. Time and credit arranged.

150. Special Problems in Dairy Production. Any quarter. Time and credit arranged.

151, 152, 153. Dairy Technology. Testing and analysis of milk and the products made from it. Introductory dairy research will be emphasized. Two credits each quarter. Fall and Winter, M. 1; Lab., M. 2-5. Spring, Th. 1; Lab., Th. 2-5.

154. Special Problems in Dairy Manufacturing. Any quarter. Time and credit arranged.

216. Research in Dairy Production. Any quarter. Time and credit arranged. (Twelve credits, maximum.)

217. Research in Dairy Manufacturing. Any quarter. Time and credit arranged. (Twelve credits, maximum.)

254. Special Problems in Dairy Manufacturing. Any quarter. Time and credit arranged.

Horticulture

F. M. Coe, Associate Professor.

The instructional work in horticulture provides not only for the needs of the student who wishes to specialize in this field of service, but offers general introductory and service courses to students specializing in other fields of agriculture. Theoretical instruction in horticultural science is accompanied by practical work with the actual trees, fruits, vines, and plants. Practice in identification of varieties, pruning, grafting, budding and other methods of propagation, spraying, planting, pollination and hybridizing of fruit plants, grading, and packing of fruits is given in laboratory exercises which are carried out in greenhouses, nurseries, gardens, packing houses, vineyards, berry plantations and orchards of the College and Experiment Station as well
Fruit Growing is a healthful, interesting and profitable outdoor occupation especially suited to service men and women with agricultural inclinations, including those with certain types of disabilities. All courses in horticulture are open to veterans to prepare them for postwar opportunities in fruit growing, nursery work and related fields, and special attention will be given to their needs. If 10 or more such students apply, special vocational courses covering the practical and commercial phases of fruit growing will be given.

Horticulture is a field of work suited to women as well as men, and women preparing for service in Agriculture are especially welcomed in horticulture courses.

Students specializing in horticulture may elect to major in general horticulture or in the more specialized field of pomology. Basic training in botany, plant pathology, chemistry, physics, entomology, soils, irrigation, agricultural economics, genetics, English and speech should precede or accompany course work for a major or minor in horticulture. Students should elect advanced work in soils, plant breeding, botany, and entomology.

Professional courses of study with a major in horticulture may be followed, leading to commercial fruit growing and marketing, Smith-Hughes teaching, agricultural inspection, and extension work. An approved scientific course is also offered, leading to graduate study in preparation for technical research and collegiate instruction.

For a major in horticulture, the following courses are required: Hort. 1, 6, 8, 101, 102, 107, 110, 112, 151, 152, 153, 154, 155; Vegetable Crops 1, 105; Landscape Architecture 3. Supporting courses recommended are: Zoology 108, 109, 112; Botany 23, 30, 120, 130, 135; Agron. 6, 108, 109, 110, 115; Ag. Econ. 62, 113, 114; A. E. 10, 14a, 15a, 106, 116.

1. Tree Fruit Production. Outlook, selection of locations and varieties, rootstocks, propagation of fruit plants, establishing orchards, pruning and training, soil management, thinning, pollination, pest control, harvesting, grading and packing. Four credits. Fall, T. Th. 11; Lab. arranged.

6. Plant Propagation. The fundamental principles underlying the propagation of plants: seedage, graftage, cuttage, layerage, separation, and division. Practice is taught in laboratory exercises in the greenhouse and nursery. Designed for anyone interested in plant science or plants as a hobby. Three credits. Winter. Time arranged. Staff

8. Small Fruit Production. Commercial and home culture of strawberries, blackberries, dewberries, raspberries, gooseberries, currants, and grapes, including (a) location; (b) soil management; (c) botany, varieties, classification; (d) propagation, planting, and culture; (e) pruning and training; (f) harvesting and marketing. Three credits. Winter.

101, 102. Advanced Pomology. A two-term course covering the fundamental principles and practices of orcharding as developed by research in horticultural science. Course 101 includes geography of fruit production, climatic factors, temperature relations, propagation, rootstocks, and water relations; course 102 covers nutrition, pruning and training, fruit setting, thinning, soil management. The practical application of fundamental principles is considered. Courses 110, 111, 112 (Orchard Practice) are laboratories for these courses, and should accompany them. Prerequisites: Botany 23; Chem. 12 or 121; Agronomy 6. Alternates with 151. Three credits each quarter. Fall and Winter.

107. Spraying. Fungicides and insecticides used in the control of insects and diseases; preparation, properties, and use in spraying; spray machinery and equipment, dusts, and dusting; spray schedules, economics of spraying; fumigation; design, care and operation of spray equipment. Prerequisites: Chem. 4 or 11; Botany 130 (Plant Pathology); and Zoology 108 (Ag. Entomology). Three credits. Winter.
110, 111, 112. Orchard Practice. Laboratory course to accompany 101, 102, 152. Advanced field work in seasonal orchard operations. Fall quarter include picking, grading, packing and storage of fruits, exhibiting and judging, and field trips to orchards, packing plants and storages. Winter quarter includes practice in bench grafting, seed sterilization, stratification, handling seedlings, pruning, training, grafting, orchard planning, spraying and packing home machinery care and adjustment. Spring operations are pruning, renovation, grafting, planting, pollination, hybridizing, spraying, cultivation, irrigation, thinning. Prerequisite, Hort. 1. One credit each quarter. Time arranged.

151. Systematic Pomology. Study of varieties of fruits, origin, classification, identification, judging, adaptation, important pomological groups and their relationships. Prerequisite, Hort. 1. Alternates with 101. Four credits Fall. (Not given 1945-46.)

152. Commercial Pomology. Problems in handling and marketing of fruit; maturity indexes, picking, grading, packing, transportation, storage, distribution, buildings, equipment, roadside and local marketing. Hort. 110 shall precede this course. Prerequisite, Hort. 1. Alternates with 102. Three credits Winter. (Not given 1945-46.)

153, 154, 155. Seminar. Oral and written reports on research work and original papers on pomological problems such as fruit breeding, storage, fruitfulness, pollination, water relations, hardiness, etc. One credit each quarter. Fall, Winter, and Spring. Time arranged.

156. Special Problems. Advanced problems in pomology for qualified seniors or graduate students. Assigned readings and research work in library, laboratory, greenhouse or field, presented as term papers. Registration by permission only. Any quarter. One to three hours' credit. Time and credit arranged.

201, 202, 203, 204-A, 204-B. Research Original research on pomological problems for graduate students taking a major or minor in horticulture. Registration by permission only. Three to ten credits. Course 201, Fall Quarter; 202, Winter quarter; 203, Spring quarter; 204-A and 204-B, Summer session and Intersession, respectively.

Landscape Architecture

L. S. Morris, Associate Professor.

In addition to courses of popular interest for students from other colleges seeking an appreciation of landscape art, professional courses of study for a major in Landscape Architecture are offered, leading to opportunities both in private practice and in public employ as landscape architects, city planners, park superintendents, landscape engineers in state and federal recreation areas, as well as other phases of government service.

3. Elements of Landscape Architecture. Principles of design as applied to different types of landscape projects. The planning of home grounds is emphasized. Course is designed for women as well as men and is of particular value to those wanting a general knowledge of landscape architecture. A field trip required. Three credits. Fall, Sec. 1; Spring, Sec. 2; Lecture, Fall, T. Th. 8; Spring, T. Th. 11; Lab., T. 2-5.

10, 11. Plant Materials. Classification, identification, ecological requirements and uses of both woody and herbaceous plants for landscape purposes. Both native and introduced plants studied. Three credits each quarter. Fall and Spring, Lecture, T. Th. 9; Lab., Th. 2-5.


60, 61, 62. Architectural Design. The design of such architectural features as used in the garden and landscape; pergolas, arbors, fences, retaining walls, steps, garden houses. Criticism given by practicing architects. Two credits each quarter. Fall, Winter, and Spring, T. Th. 2-5.

140, 141, 142. Landscape Design. The design of private and public properties based on the principles of utility and composition. Prerequisites, Landscape Architecture 3 and 20. Two credits. Fall, Winter, and Spring, T. Th. 2-5.

150, 151, 152. Planting Design. Pictorial compositions and planting plans developed together. This course is designed to develop the student's ability to visualize the finished landscape. Two credits each quarter. Fall, Winter, and Spring, T. Th. 2-5.


170, 171, 172. Advanced Landscape Design. The design of home grounds, estates, parks, cemeteries, building groups, and recreational areas on various types of topography. Three credits each quarter. Fall, Winter and Spring, M. W. F. 2-5.

190. Special Problems. Selected problems to meet the needs of individual students for completion of training. Registration by permission only. Any quarter. Time and credit arranged.

**Poultry Husbandry**

**BYRON ALDER, Professor; CARL FRISCHKNECHT,* C. I. DRAPER, Associate Professors.**

1. General Poultry. A study of breeds, judging, incubation, brooding, feeding, marketing. Designed to meet the needs of the students wishing a general knowledge of the poultry industry and the problems of production, and a foundation upon which other courses are built. Three credits. Winter, M. W. F. 11. Spring, M. W. F. 9.

2. General Poultry Laboratory. Covers the same work as Poultry 1, with practical laboratory problems. One credit. Winter or Spring, T. 2-5.

8. Turkey Production. A study of the breeds, breeding, brooding, feeding, and marketing of turkeys. Special problems involved in small farm flock or large commercial flock management are emphasized. Two credits. Winter, T. Th. 9.


104. Incubation and Brooding. This course is designed to familiarize the student with the special problems involved in incubation or hatchery operation and the brooding, feeding, and rearing of chicks. The advantages and disadvantages of battery, hot water, electric, coal burning, and gas brooders are emphasized. Two credits. Spring, T. Th. 9.

*On leave.
105. Poultry Management. Problems of location of poultry farm, planning, renewing the flock, feeding, disease control, marketing, and other problems affecting labor income are studied in detail. Prerequisite, Poultry 1. Three credits. Spring, M. W. F. S. Poultry 105 and 106 given alternate years (Not given 1945-46.)

106. Breeds and Breeding. A study of the origin and development of breeds and varieties of poultry and their adaptability to intermountain conditions; production of hatching eggs for commercial hatcheries; R. O. P. Breeding, and the National Poultry Improvement Plan; and important inheritance problems in poultry. Prerequisites: Poultry 1 or 101, and An. Hus. 15, or Zo. 112. Three credits. Spring, M. W. F. 8.


125. Special Problems. Special assignment to work out certain information on special problems. Prerequisites, Poultry 1, 104, and 107. Winter and Spring. Time and credit arranged.


Poultry Diseases. (See Veterinary Science 170.)

Vegetable Crops

L. H. Pollard, Associate Professor; L. R. Hawthorn, Collaborator in Research, U.S.D.A.

Students majoring in vegetable crops are required to take the following courses: Vegetable Crops 1, 105, 120, 121, 161, 162, 163; Botany 120, 121; Hort. 1, 8; Agron. 6 or 106, 110.

Students who plan to do graduate work may be admitted to a technical course in Vegetable Crops by permission of the Head of the Department of the Agricultural Advisory Council.


105. Major Vegetable Crops. The classification, identification, origin, history, types, and uses of our vegetable crop plants. Special emphasis will be placed on those crops of major importance in Utah. This course alternates with 121. Prerequisite: Veg. Crops 1. Four credits. Fall, M. W. F. 9; Lab. T. Th. 9-12.

120. Vegetable Improvement. The fundamental principles and practices of plant breeding in the improvement of vegetables. Prerequisite: Agronomy M. Four credits. Spring, M. W. F. 8; Lab., W. 2-5.

121. Advanced Vegetable Crops. A consideration of the economic, ecological, and physiological factors underlying vegetable production, based on study of experimental results. Prerequisites: Veg. Crops 1, 105; Agron. 6, 106; Bot. 120. This course alternates with 105. Four credits. (Not given 1945-46.)

160. Special Problems. Problems of production and breeding of vegetable crops. Registration by permission only. One to three credits, any quarter. Time arranged.

161, 162, 163. Seminar. Reports on research work and presentation of original papers. One credit each quarter. Time arranged.

210. Research. Original research on vegetable crop production or breeding problems for graduate students taking a major or minor in vegetable crops. Three to ten credits. Any quarter. Time arranged.
Veterinary Science

M. L. Miner,† Associate Professor; Wayne Binns,* H. M. Nielsen, Assistant Professors.

Courses in Veterinary Science are not designed for training specialists in this field, but are intended as supplements to courses in Animal Husbandry, Dairy Husbandry, and Poultry Husbandry. Animal hygiene and practical control and prevention of disease are stressed. Pre-veterinary courses, for those who later wish to obtain Veterinary degrees elsewhere may be taken at this school.

10. Veterinary Science. An introductory course to anatomy, physiology, hygiene, and disease control of domestic animals; the most prevalent diseases, their causes, symptoms, course, diagnosis, treatment, and control. Five credits. Fall, Daily 8.

32. Clinic. Discussions, demonstrations, and experience. Subject matter includes common farm surgery, wound treatment, premise disinfection, autopsy methods and testing procedures as applied to livestock and poultry. One credit. Spring, Fall, M. 2-5.


Pre-Veterinary Course of Study

The minimum pre-veterinary course of study is three quarters of college work. This includes one year each of English, inorganic chemistry, and biological science. Courses in mathematics, physics, and economics are also desirable. Most students find it necessary to complete two years of college work before they are accepted by a veterinary school. Many students will find it necessary to complete four years of college work leading to a bachelor's degree before they are accepted. A student majoring in zoology, pre-medicine, or bacteriology as outlined in this catalog will complete all requirements for entrance to a veterinary school.

*Stationed at Provo.
†On leave.
SCHOOL OF ARTS AND SCIENCES

CARLTON CULMSEE, Dean.

Bacteriology and Biochemistry ......................... 84
Botany and Plant Pathology .......................... 84
Chemistry ............................................. 85
English and Journalism ............................... 88
Geology ............................................... 94
History ............................................... 94
Mathematics ........................................... 96
Modern Languages and Latin ......................... 97
Physics ............................................... 100
Physiology, Public Health and Hygiene ............... 102
Speech ................................................. 104
Zoology and Entomology ............................. 107
IN ADDITION to training students to carry on their work in the technical divisions of the Institution, the School of Arts and Sciences offers opportunity to all the students of the College for a liberal education. The need to understand our own culture as well as the cultures of other nations has never in history been so urgent as now. It is the surest path to permanent peace in the post-war world. Many of the courses in Arts and Sciences qualify the student directly to play his part as an informed citizen in that great hope. The curricula of Arts and Sciences also enables properly qualified students to major in its departments and thus begin preparation for a career.

The School of Arts and Sciences includes the departments of Bacteriology and Biochemistry, Botany, Chemistry, English, Speech, Geology, History, Mathematics, Modern Languages and Latin, Physics, Physiology, Public Health and Hygiene, and Zoology and Entomology. The School also provides for premedical and predental work.

For requirements for admission, certification, and graduation, see pages 39 to 43.

**PREMEDICAL TRAINING**

The School of Arts and Sciences offers the necessary courses to provide a premedical training which will satisfy the entrance requirements of Medical Schools of the United States and Canada.

**SUGGESTED PREMEDICAL SCHEDULE**

**Freshman Year**

(Lower Division)

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<th>Course</th>
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<td>French, German or Latin</td>
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<td>Math. 34, 35, 46</td>
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<td>Military Science</td>
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**Sophomore Year**

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<td>English 10</td>
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**Junior Year**

(Upper Division)

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<td>Chem. 102, 103</td>
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<td>Zoology 117, 118</td>
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<td>English 110</td>
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For the duration of the war students planning to go into the profession of Medicine, should plan to complete their premedical training in two academic years and two summer sessions.
SCHOOL OF ARTS AND SCIENCES

PRE-DENTAL WORK

Students planning to go into the profession of Dentistry may take the necessary courses in the School of Arts and Sciences to satisfy the requirements for admission to any of the Dental Schools in the United States.

SUGGESTED PRE-DENTAL SCHEDULE

Freshman Year

(Lower Division)

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<th>Course</th>
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<td>Zoology 3, 4</td>
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<td>Mathematics 34</td>
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<td>Health Education 14</td>
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<td>English 40</td>
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<td>Military Science 1, 2, 3, or P.E.</td>
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<td>Electives (optional)</td>
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Sophomore Year

(Lower Division)

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<td>Zoology 118</td>
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<td>English 10, 110</td>
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<td>History 4</td>
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<td>Political Science 10</td>
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<td><strong>Total</strong></td>
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Students planning to receive a B.S. degree on a combined curriculum (three years here and one year in a Medical or a Dental school) must fulfill the group and composition and military requirements of this College and must complete a minimum of 141 credits of pre-professional work.

CADET PRE-NURSING TRAINING

Under the Bolton Act, and in cooperation with the Budge Memorial Hospital, the College is offering the fundamental academic courses preparatory to nursing training in the National Cadet Nursing Training program. The academic course covers a period of two quarters and is scheduled as follows:

**Summer Session**

- 5a Nutrition for Nurses....5 credits....daily 8-10
- 10a English..............5 credits....daily 10 & 2

**Intersession**

- 4a Anatomy and Physiology...5 credits....daily 8-10
- 3a Psychology for Nurses...3 credits....daily 10-12

**Fall Quarter**

- 1a Introductory Chemistry.....5 credits....M.W.F. 10, T.Th. 9-12
- 1a Microbiology............5 credits....M.T.Th.F. 11, W. 2-5
- 40 Sociology for Nurses...3 credits....M.T.Th. 2
- 14 Hygiene..................8 credits....M.W.F. 9
Winter Quarter

5a Nutrition for Nurses ............. 5 credits ............. daily 9
3a Psychology for Nurses ........... 3 credits ............. M.W.F. 11
4a Anatomy & Physiology ............ 5 credits ............. daily 10
10a English ......................... 5 credits ............. daily 8

Persons interested in the pre-Nursing training program should address inquiries to Dean W. L. Wanlass at the College or to the Superintendent of Nursing Training, Budge Memorial Hospital, Logan.

Bacteriology and Biochemistry
Administered jointly by the School of Agriculture and the School of Arts and Sciences

J. E. GREAVES, Professor;  K. R. STEVENS, Associate Professor;
L. W. JONES, Assistant Professor

See pages 43 and 44 for courses that may satisfy group requirements.

Students majoring in the Department of Bacteriology and Biochemistry should complete Physics 6, 7, or 21, 22; Mathematics 46; Chemistry 12 or 122; Botany 21, 22; Zoology 4; and Bacteriology 1, 2, 20, 107, 109, 110, 111, 112.

See School of Agriculture for course listing.

Botany and Plant Pathology
Administered jointly by the School of Agriculture and the School of Arts and Sciences

B. L. RICHARDS, Professor;  F. B. WANN, Associate Professor;  ARTHUR H. HOLMGREN, W. S. BOYLE, Assistant Professors;  ROBERT K. GERBER, Research Assistant;  BASSETT MAGUIRE, Curator New York Botanical Garden, Non-Resident Professor;  H. L. BLOOD, Collaborator in Research, U.S.D.A.

In addition to course work, the Department of Botany offers special opportunity for research in plant taxonomy, plant physiology, plant anatomy, and plant pathology. The research and graduate possibilities in plant pathology are greatly augmented through the cooperation of the United States Department of Agriculture.

See pages 43 and 44 for courses that may satisfy group requirements.

REQUIREMENTS FOR A MAJOR IN BOTANY OR PLANT PATHOLOGY

Bot. 21, 22, 23 General Botany
Bot. 30 Taxonomy
Bot. 116 Micro-Technique
Bot. 117 Plant Anatomy
Botany 21, 22, 23, 30, 120 and 130 or equivalent required for teaching major.

Recommended additional courses for the following major fields:

Plant Pathology
Bot. 121 Water Relations
Bot. 131 Field Crop Diseases
Bot. 135 Fruit Crop Diseases
Bot. 140 Forest Pathology
Bot. 151 Mycology

Taxonomy
Bot. 108 Agrostology

Plant Physiology
Bot. 121 Water Relations
Bot. 224 Advanced Physiology

See School of Agriculture for course listings.
The degree of Bachelor of Science in Chemistry is a professional degree and graduates must meet the minimum requirements of the American Chemical Society in addition to fulfilling the group requirements of the College as given on pages 43-44 of this catalog. To aid the student in registering the following suggested schedule is given.

**Suggested Schedule**

**Freshmen**

A. For students having completed 1½ units of high school algebra and ½ unit of geometry:

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<td>Math. 35, 46, 97</td>
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B. For students who enter college with credit for only 1 unit of algebra and ½ unit of geometry:

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<td>Math. 34, 35, 46</td>
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<td>Group requirements in biological and/or social sciences</td>
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<td>Eng. 10 or 11 (special petition must be made to take this course in freshman year)</td>
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<td>Physical Education or Military Science and Tactics</td>
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**Sophomores**

A. For students with mathematics:

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<td>English 10 or 11</td>
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<td>Physics 20, 21, 22</td>
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Note: 5 hrs. jr. college group requirements must be completed in junior year.

B. For students with incomplete mathematics:

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<td>Math. 97, 98, 99</td>
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<td>Physics 20, 21, 22</td>
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Note: 10 hrs. jr. college group requirements must be completed in junior year.

**Juniors**

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<tr>
<td>Chem. 121, 122, 123</td>
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<tr>
<td>Jr. college group requirements</td>
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<td>Electives in geology, biology, social science, English lit., readings in German</td>
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### Seniors

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<td>Chemistry 104, 105, 106</td>
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<td>Chemistry 109, 110, 111</td>
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<td>Chemistry 135</td>
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<td>Chemistry 160</td>
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<td>English 111</td>
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<td>Physics 120, 121, 130</td>
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<tr>
<td>Electives (must include at least 8 hrs. adv. chem.)</td>
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Total: 20 credits

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1. **Introductory Chemistry.** An informational course in beginning college chemistry designed to give students a broad view of the cultural aspects of the science of chemistry. This is a terminal survey course and cannot be used as a prerequisite for advanced courses in chemistry. Students with credits in high school chemistry should not register for this course. Five credits. Spring. Lectures, daily 11.

1a. **Applied Chemistry.** A survey course in chemistry designed for nurses. Three lectures and two laboratory periods per week. Five hours credit. Quarter and time to be arranged.

3, 4, 5. **Chemical Principles and Qualitative Analysis.** An introduction to chemical theory and the principles of chemistry including introductory qualitative analysis in the spring quarter. Prerequisites: high school chemistry or physics, algebra and geometry. This course is designed for science majors, pre-medical and pre-dental students and home economics majors in foods and nutrition. Three lectures and two labs. Five credits each quarter. Fall, Winter and Spring. Lectures, M. W. F. 8. Lab., Sec. 1, T. Th. 2-5; Sec. 2, M. W. 2-5.

10, 11, 12. **General Chemistry.** An introduction to the fundamental principles of inorganic and organic chemistry. A one year terminal course open to any matriculated student. Students with a grade of B or better, may enter Chemistry 5 in the spring quarter. Five credits each quarter. Three lectures and two labs. Fall, Winter and Spring. Lectures, M. W. F. 8. Lab., Sec. 1., M. W. 2-5; Sec. 2, T. Th. 2-5.

101, 102. **Quantitative Analysis.** A course in the theory and practice of gravimetric and volumetric analysis. Prerequisite: Chemistry 5. The course is so designed that it presents a terminal course for majors in agriculture, home economics and pre-medical and pre-dental students. One lecture and three labs. Three credits each quarter. Fall and Winter. Lectures, T. 1. Lab., Sec. 1, M. W. F. 2-5; Sec. 2, T. Th. F. 2-5.


104, 105, 106. **Physical Chemistry.** Including atomic, kinetic, and electron theories, gaseous, liquid and solid state; solutions and thermodynamics. Prerequisites, Physics 20, 21, 22; Chemistry 5; Mathematics 98. Three credits each quarter. Fall, Winter, and Spring. Time arranged.

107, 108. **Dairy Chemistry.** The chemistry of milk and milk products, including tests for adulterants, preservatives, and the routine quantitative methods of the analysis of dairy products. Prerequisites, Chemistry 12 or 122. Winter and Spring quarter, 2 Lect. and 2 Labs. each quarter. Four credits each quarter. Lect., T. Th. 9; Lab., W. F. 2-5.

109, 110, 111. **Physical Chemistry Laboratory.** To accompany Chemistry 104, 105, and 106. One credit each quarter. Fall, Winter, and Spring. F. 2-5.

116. **Inorganic Preparations.** A laboratory course in practical laboratory methods of synthesis inorganic chemistry. Prerequisites, Chemistry 5 and 103. Any quarter. Time and credit arranged.

120 or 220. **Special Courses in Quantitative Analysis.** Advanced courses in the analysis of Water, Food, Soil, Urine, Gas and Carbonate and Silicate rocks. Prerequisite: Chemistry 9. Winter or Spring. Time and credit arranged.
121, 122. Organic Chemistry. An introductory course in the fundamentals of the chemistry of the carbon compounds. Prerequisites: Chemistry 5 or a grade of B or better in Chemistry 12. Credits: five or four (see note), each quarter. Fall and Winter. Three lectures and two labs. Lectures, M. W. F. 11. Lab., Sec. 1, M. W. 2-5; Sec. 2, T. 2-5. Burton

Note: Students other than chemistry majors and pre-medical students may register for four hours credit by registering for laboratory section 2.


124 or 224. Organic Preparations. An advanced laboratory course in the synthesis of more complex organic compounds. Prerequisite, Chemistry 123. Any quarter. Time and credit to a maximum of three hours to be arranged. Burton

125, 126, 127 or 225, 226, 227. Advanced Organic Chemistry. An advanced course designed for senior and graduate students including modern theories and special topics in organic chemistry. Prerequisites: Chemistry 123 and 106. Two credits each quarter. Fall, Winter and Spring. Lecture, T. Th. 11. Burton

132 or 232. Colloidal Chemistry. A course in the chemistry of colloids and their relationship to the vital processes in plant and animal life. Prerequisite, Chemistry 122. A background in Physical Chemistry is desirable. Three credits. Time arranged.

133 or 233. Colloidal Chemistry Laboratory to accompany course 132. Time and credit arranged.

134 or 234. Qualitative Organic Analysis. A study of the classification reactions and laboratory work involved in the identification of unknown organic compounds. Prerequisites: Chemistry 103 and 123. Three credits. Spring. One lecture and three labs. Lectures, M 1. Lab., time to be arranged. Burton

135. Chemical Literature. A study of the types of information available in technical publications; exercises in finding, assembling and using such information. Three credits. Any quarter. One lecture and two three-hour laboratory periods in the library. Time to be arranged. (This course should precede or accompany English 111.) Staff

140 or 240. Physico-Chemical Methods. An advanced laboratory course. Any quarter. Time and credit arranged. Maeser

150 or 250. Advanced Inorganic Chemistry. A study based on the periodic Table and atomic structure. A course designed for Chemistry seniors and graduates and others with similar training. Given on alternate years. Three credits. Winter, M. W. F. 9. Maeser

155. Glass Blowing. A laboratory course in the technique of manufacture and repair of laboratory glassware. This course is designed for chemistry majors. Others admitted only by special permission. Any quarter. One credit. Time arranged.


170-270. Chemical Microscopy. Undergraduate and graduate. Lecture and laboratory practice. Microscopes and their accessories, as applied to problems in chemistry. Practice in the examination and analysis of inorganic substances containing the more common elements, with special reference to rapid qualitative methods and to the analysis of minute amounts of material. Prerequisite, Physical Chemistry or special permission. Any quarter. Credit and time arranged.


180 or 280. Research. Senior or graduate students majoring in chemistry may elect research in any branch of the subject. Any quarter. Time and credit arranged.
English

N. Alvin Pedersen, Alma N. Sorensen, Professors Emeritus;
Wallace J. Vickers, King Hendricks, Carlton Culmsee, Professors;
Ira N. Hayward, Myole Q. Rice, Alice Senob, Assistant Professors.

See pages 43 and 44 for courses that may satisfy group requirements.

English Major Requirements

Students who intend to major in English must complete English 1, 10, 53, 60, and 61 before beginning work on the required upper-division courses. It is highly desirable to complete History 34 and at least one year of a foreign language during the freshman and sophomore years.

English 105, 118, 119, 162, 163, 196, 197, 198, any three of the following, 161, 170, 175, 180, 190, 191, and at least 24 hours of a foreign language are required of majors in English. Of these 24 hours, 18 may be used as a minor. Students must also maintain a "B" grade average in their major subjects. Teaching majors in English meet the same requirements except foreign language.

Students whose major interests are divided between English and Speech may take a composite English-Speech major. Such a major relieves the student of all requirements for a minor. English-Speech majors should take English 1, 53, 118, 119, 163, 180, 190, 191; Journalism 3 (three credits) and 112; Speech 150 (10 credits), 175, 10 hours of Interpretation, including 124, and 10 credits of Public Speaking, including either 25 or 109.

A. Drill in Essentials of English. This course is intended to assist students with English deficiencies to qualify themselves for more successful work in college composition. Students whose standings in the Freshman Placement Examination show the need of such assistance are assigned to one of the sections as a prerequisite for English 10. No credit. Winter, M. W. F. 9. Spring, M. W. F. 11. Hayward


10. Sophomore Composition. Required of all students not offering its equivalent. May not be taken in the Freshman year. This course will stress correctness and effectiveness in sentence, paragraph and theme; give practice in organization and outlining of material, and in expository writings; demand clear, forceful expression, and require a full third of a student's time. Five credits. Seven sections.

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11. Sophomore Composition. Should be taken in place of English 10 by sophomore students whose record in the placement test indicates special aptitude in composition. Open only to students whose placement cards are marked "Eligible for English 11." Five credits. Fall, Daily 11.


21. Introduction to Poetry. This course aims at an appreciative reading of poetry based on critical standards, to be reached through an understanding of the form of poetry; through a sense of the universal emotions which inspire it and give rise to traditional types; through a perception of what the personality of the poet and the spirit of his time contribute, and finally, through insight into the beauty and intense vitality which are communicated through the combination of these forms, feelings, attitudes, and ideas. Five credits. Spring, Daily 11.

22. Contemporary Poetry. A study of the principal British and American poets since 1900. The purpose of the course is to help students to enjoy and understand poetry as a living art. Three credits. Winter, M. W. F. 11.

24. Children's Literature. Introduction to the prose and poetry of childhood and adolescence. A $1.50 library fee is required. This course is helpful to teachers and parents. Four credits. Fall, Winter and Spring, M. T. W. Th. 2.


28. Floating Poetry. A study of the poetry that has lived in the oral tradition since medieval times. The course is divided into four parts; the narrative ballad, the non-narrative poem, Negro poetry (including slave songs and spirituals), and children's poetry. Three credits. Winter, M. W. F. 8.

30. Short Story. A study of the technique of the short story. English, American, and European stories will be analyzed. Encouragement will be given to those who wish to write. Five credits. Spring, Daily 10.


40. World Literature. A survey course including a study of epic and romance, tragedy, comedy, satire, etc., as these forms have appeared in Greek, Roman, Hebrew, Italian, French, German, English and American literature. Five credits. Fall, Daily 11. Winter, Daily 10.

46. The Bible as English Literature. The course provides an opportunity for first hand acquaintance with the great book of books. Five credits. Spring, Daily 9.

47. Survey of World Drama (Early Period). A study of selected plays of Aeschylus, Sophocles, Euripides, Aristophanes, Menander, Plautus, Terence, and Seneca; also of the medieval liturgical drama. Attention will be paid to social conditions, philosophy, and political history of the times. This is the first in a series of three courses covering the drama from Greek beginnings to the present. Five credits. Fall, Daily 10.

48. Survey of World Drama (Middle Period). A continuation of 47. A study will be made of selected plays from the English dramatists of the sixteenth century, exclusive of Shakespeare; of the Stuart period, the Restora-
tion, the eighteenth century, and of the early poetical dramatists of the nineteenth century. Included also will be the works of such continental dramatists as Lope de Vega, Calderon, Corneille, Racine, Moliere, Lessing, Schiller, Goethe, and others. Five credits. Winter, Daily 9.


53. American Literature. A survey of American literature from the beginnings to the present, with special emphasis on the works of those authors whose writings express the democratic spirit or in other ways portray ideas characteristic of American culture. Open to English majors or minors and to majors and minors in other departments by permission of the instructor. Five credits. Fall, Daily 9.

54. American Biography and Autobiography. Aimed to introduce American Biography and Autobiography both as an enjoyable and important form of literature, and as a source of valuable sidelights on American thought and culture. Two credits. Winter, T. Th. 8.

55. American Novel. A study of the writings of the principal American novelists from Charles Brockden Brown to present. Emphasis will be placed on the novel as a form of art portraying and interpreting the American scene, past and present. Three credits.

56. American Drama. A study of the development of American drama from Revolutionary times to the present. The principal American plays are studied in the light of the literary and social theories of the times in which they were written. Three credits. Winter, M. W. F. 8.

59. Emerson. Selected essays, speeches, poems. Two credits.


63. Shakespeare. The course offers the opportunity to gain a general knowledge of Shakespeare by reading a liberal number of his plays and participating in class discussions upon them. Three credits. Fall, M. W. F. 9.


88. Browning. Chiefly a study of his monologues and selected dramas. Two credits.

95. Contemporary Novels. A course in the reading and interpretation of the best in twentieth century novels from England, America, France, Germany, and Russia as they mirror the social and literary forces of our times. Three credits. Fall, M. W. F. 10.


110. Advanced Composition. Required of Upper Division students. The course will emphasize correctness, vocabulary selection and organization of material, clearness, and interest in expository essays. Choice of students considered in assignment of articles to write. Four credits.
111. Technical Writing. Emphasis will be placed upon bibliography, research methods and final form of technical report. May be taken in lieu of 110. Four credits. Winter and Spring, M. T. W. Th. 1.

118, 119. Creative Writing. Short stories, essays, poetry. Considerable freedom of choice as to type. To register for Winter quarter exclusive of Fall quarter, consult instructor. Three credits each quarter. Fall and Winter, M. W. F. 10.


130. Book Reviewing. How to review books; emphasis is placed on literary evaluation and discussion of both fictional and non-fictional books. A course designed for both students and clubwomen. Open to lower division students. Three credits.

143. Soviet Literature in Translation. A study of the literature produced in Soviet Russia between the year 1918 and the present. Special emphasis will be given to the works of Gorki, A. Tolstoi, Ehrenburg, Sholokov, and others. Five credits. Spring, Daily 11.


Thomas Mann. (See German 153.)


170. Milton. Selected prose and poetry with special emphasis on Paradise Lost. It is desirable, though not necessary, to have English 46 and 47 before taking this course. Five credits.


190. Romantic Period. A brief study of the precursors of romanticism; a study of the literature from 1790-1832, with emphasis on poetry. Five credits.
191. The Victorian Period. A comprehensive review of the literary influ­ences and personalities of the period, with emphasis on the chief poets and prose masters of the age. Five credits.  
Sorensen

193. Arnold. Studies in the prose of Matthew Arnold, with emphasis on Arnold’s contribution to nineteenth century thought. Two credits.  
Sorensen

Staff

196, 197, 198. English Seminar. Directed readings in the longer masterpieces of English Literature which normally cannot be covered in survey and period courses. Students will be given individual direction in reading and reporting on the longer works of important authors, with special emphasis on the novel and the drama, both British and American. Required of all English majors. Two credits per quarter. Fall, Winter, and Spring, T. Th. 3.  
Staff

211. Technical Writing. A course in technical writing for students working on a Masters’ Thesis. Two credits. Time arranged. Fall, Winter, or Spring.  
Hendrickson

JOURNALISM

Majors in Journalism should complete English 1, 5, 10, 12, 13, 14, 15, 16, 110, 112, 113, 114, 115, 116, 118 or 119, and 6 hours of literature.
3 or 103. College Journalism. One credit will be allowed each quarter for work done on Student Life under the supervision of the instructor. Students must register for the course to receive credit. One credit each quarter. Maximum, six credits. Any quarter. Time arranged.  
Culmsee

12. Newspaper Reporting. Lectures, practice, and group discussions on the work of the reporter and correspondent. Students are required to cover assignments for college, local, and state newspapers. Three credits. Fall, M. W. F. 11.  
Culmsee

Culmsee

Culmsee

15. Community Journalism. Lectures and discussion on problems pertaining to the writing, editing, and publishing of a weekly newspaper; news sources and methods of community correspondents. Consideration will be given to writing farm and home news stories. Three credits. Fall, M. W. F. 8.  
Culmsee

Culmsee

112. The Writing of Feature Articles. Lectures and practice in preparing feature articles for newspapers and magazines. Analyses of periodicals will be made to determine available markets and what editors will buy. Three credits. Winter, M. W. F. 9.  
Culmsee

113. Publicity Methods. A detailed study of media and methods used to inform the public. Consideration will be given to public relations work as required by corporations, public institutions, service organizations, and governmental agencies. Three credits. Spring, M. W. F. 9.  
Culmsee

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Geology

J. Stewart Williams, Professor; Assistant Professor.

Geology Club: The Geology Club, an organization of geology students under the supervision of the Department of Geology meets in the lecture room of the department at 8:00 p.m. on the second Thursday of each month. The programs consist of talks by guests, faculty members, and students. All interested persons are invited to attend. Regular attendance is required of all geology majors.

Major in Geology: The following courses, or their equivalents, outside the Department of Geology, are required of Geology majors: Chem. 3, 4, and 5; C. E. 81, 82, and 83; English 110 and 111; Physics 20, 21, and 22; Math. 34, 35, and 46. The following courses in the department, are required of majors: 1 or 3, and 2; 101, 102, 106 or 108, 110, 112 or 113, 114, 115, and 120.

Field Trips: Since field work is a very essential part of the study of Geology, majors should be prepared to devote most of the Saturdays during the Fall and Spring quarters to this work. Two longer field trips, each of several days' duration, are taken each year, one in the Fall quarter and one in the Spring quarter. Majors should plan to take as many of these trips as possible, and attendance on the majority of the trips is required for a major.

1. Introductory Physical Geology. A general survey course of the whole field of physical geology for arts students and others who desire only a broad introduction to the subject. This course is continued in Geology 2, for which it is a prerequisite. Closed to students who have had Geology 3 or equivalent. A one-day field trip is required in Fall and Spring quarters. Five credits. Fall Daily 10. Winter, Daily 9. Spring, Daily 8. Williams

2. Introductory Historical Geology. A continuation of Geology 1 covering the field of historical geology. A one-day field trip required Spring quarter. Prerequisite, Geology 1. Five credits. Winter, Daily 10. Williams

3. Physical Geology. This course is designed for forestry, engineering and soils students and others who desire a substantial introduction to physical geology. Not open to students who have taken Geology 1 or equivalent. A one-day field trip required Fall and Spring quarters. Five credits. Fall, M. T. W. Th. 9; Lab., T. or Th. 2-5. Spring, M. T. W. Th. 10; Lab., T. or Th. 2-5. Williams

101. Mineralogy. A study of the common minerals and their occurrence. Identification of minerals by means of their physical properties and simple chemical tests. Elementary crystallography and its application to mineralogy. Methods of blowpipe analysis and their use in rapid testing of minerals and metallurgical products. Prerequisites: Geol. 3 and Chem. 3, 4, and 5. Five credits. Fall, M. W. F. 10; Lab., T. Th. 2-5. Williams


103. Engineering Geology. The application of geology to engineering problems. A course for senior engineers. Three credits. Spring, T. Th. 11; Lab., F. 2-5. Williams

106. Invertebrate Paleontology. An introduction to the study of fossils. A living example of each of the groups of animals with important fossil representatives will be used as an introduction to the fossil forms of that group. Methods of preparation and study will be developed from work upon material collected by the student himself. Prerequisite, Geol. 2 or Zoo. 1. Five credits. Winter, T. Th. 10; Lab., M. W. F. 2-5. Williams

108. Stratigraphy. An introduction to the processes by which the sedimentary rocks have been formed, and to their original structures, followed by a study of the stratigraphic systems and their identification by guide fossils. Field trips required. Prerequisites, Geol. 3 and Geol. 106. Five credits. Spring, M. W. F. 9; Lab., M. 2-5 and alternate Saturdays 8-5. Williams
110. **Structural Geology.** Rock structures and their formation, including mountain building processes. Emphasis will be placed on the recognition and interpretation of folded and faulted structures in the field. Written reports and field trips required. Prerequisite, Geol. 3. Five credits.

112. **Economic Geology—Nonmetals.** A study of geological occurrence, origin, and distribution of coal, petroleum and natural gas, building materials and other nonmetallic minerals. Commercial requirements, preparation, and marketing of these substances will also be considered. Prerequisite, Geol. 101. Five credits. Fall, M. W. F. 10; Lab., T. Th. 2-5.

113. **Economic Geology—Metals.** A study of geologic occurrence, origin, and distribution of the various metallic ores. Processes of secondary enrichment and their results on various types of ore deposits. Prerequisite, Geol. 101. Five credits. Winter, M. W. F. 10; Lab., T. Th. 2-5.

114. **Field Methods.** Field practice in measurement of the attitude and thickness of formations, field use of topographic maps, and note taking. Mapping by pacing and compass, and plane table. Prerequisites: Geol. 3, C. E. 81 and 82. Five credits.

115. **Advanced Physical Geology.** A study of those phases of geology that are of particular interest to students of conservation in the Western States. Processes of erosion, action and development of streams, land forms, subsurface water, etc. Prerequisites: Geol. 3 and College Mathematics, Chemistry and Physics. Five credits. Fall, M. T. W. Th. 11; Field Study F. 2-5.

16 or 116. **Special Problems.** Direction in the study of special problems in which a student has become interested, and upon which he desires to make written reports. From one to six credits, not to exceed two in any quarter. Time arranged.

120 or 220. **Thesis.** Senior College or graduate thesis. A thesis on some field problem is required of majors and five credits are given for its completion. Registration for this undergraduate thesis is limited to the Fall or Spring quarter. It must be for five hours and the thesis must be completed in one quarter. Registration for the graduate thesis may be for one, two or three quarters, and nine to fifteen credits are given for its completion.

230. **Graduate Seminar.** Two to five credits. Any quarter. Time arranged.

**History**

**JOEL E. RICKS, Professor; JOHN DUNCAN BRITE, Associate Professor.**

See pages 43 and 44 for courses that may satisfy group requirements.

Students majoring in the Department of History should include the following classes in the major. History 18, 19, 20, 34, 111, 124, 126, 127, 128, 135, 171A. Students majoring in history should consult the head of the department for registration.

History majors intending to pursue graduate work should complete two years of French or German.

4. **World Civilization.** Survey of the civilizations of the world from ancient times to the sixteenth century. This course is planned to meet the needs of students who wish to understand the main currents in world development and who do not have time for a more detailed course. Attention will be given to the life, principal contributions, and significance of past civilizations. Five credits. Fall, Daily 9. Winter, Daily 10.

8. **Recent European History.** This course will cover the period from the Treaty of Versailles in 1919 to the present time, emphasizing the problems following the last war and the underlying causes of the present struggle. Three credits. Fall, T. Th. 9, M. 1. Winter, M. W. F. 9.
17. Modern United States History. This course will emphasize the major economic, social and political movements since the Civil War. Recent problems will be stressed. This course is designed especially for students who have had no previous college courses in history. Five credits. Fall, Daily 10; Winter, Daily 8; Spring, Daily 9.

18. Early United States History. 1492-1828. This course will be a survey of the salient features and movements in Colonial America in Revolutionary America in the Constitutional period and in Westward Expansion. Three credits. Fall, M. W. F. 11.

19. United States History. The Middle Period. 1828-1876. This course will be a survey of the significant movements and events including Sectionalism, Expansion, Civil War and Reconstruction. Three credits. Winter, M. W. F. 11.

20. Recent United States History. Recent Period. 1876-1946. This course will cover modern industrial movements, expansion in the Far West and in the Pacific, modern political and social movements, the United States in the First and Second World Wars. Three credits. Spring, M. W. F. 11.

21. Hispanic American History. This course is planned to meet the needs of students who desire to understand the main developments in America south of the United States. A brief survey of the beginnings and colonial development of Spanish and Portuguese America will be followed by a more detailed study of the revolutions, establishment of republics, the culture and international relations of the Hispanic American nations, and will include the Monroe Doctrine and Pan-American proposals. Five credits. Spring, Daily 9.

22. History of the Pacific Area. This course will emphasize the present war in the Pacific and its historical backgrounds in the American advance in the Pacific, the rise of Japan, the partition of China, the modern movements in China and the Japanese invasion of Manchuria and China. The causes and course of the present war in the Pacific will be analyzed. Three credits. Fall, M. W. F. 10. Winter, M. W. F. 9. Spring, M. W. F. 11.

34. English History. A survey of English History from the earliest times to the present day, with emphasis upon the period since the Tudor and Stuart kings. Five credits. Spring, Daily 8.

42. World War 2. This course will stress the present war and its historical backgrounds. Current events will be evaluated in the light of their historical significance and their relationship to the winning of the present struggle. Two credits. Fall, T. Th. 10. Winter, T. Th. 9. Spring, T. Th. 10.

105. Greek History. A study of the civilization of the Hellenic peoples from their beginnings in the days of the Aegean civilization. While the politics, art, literature, and philosophy of the fifth and fourth centuries B. C., will be stressed. Attention will be paid to the spread of their culture throughout the Mediterranean world during the time of Alexander the Great. Four credits.

106. Roman History. From the beginnings of the Roman Republic to the decline and fall of the Empire in the Fifth Century A. D. Three credits. Fall quarter.

111. European History. Medieval Institutions. A study of the political, economic, social and religious institutions of the Middle Ages. Particular attention will be paid to the feudal system, monasteries and schools, the development of the church, medieval guilds, town life and universities, and the rise of constitutional monarchies. Three credits. Fall, M. W. F. 8.


127. European History, Nineteenth Century Europe. The political and economic development of the major European states since the French Revolution with emphasis upon social legislation and the background of the World War. Four credits.


135 or 235. United States History. History of the Far West. This course will deal with the region from the Rockies to the Pacific Coast with special emphasis upon the Intermountain West. Five credits. Spring, Daily 8.


175. History of American Democratic Thought. This course will trace American democratic thought from the Revolutionary War to the present. Three credits. Fall, M. W. F. 9.

Mathematics

V. H. Tingey, Professor; Marion T. Bird, Associate Professor; †Ralph L. Calvert, Neville C. Hunsaker, Assistant Professors.

See pages 43 and 44 for courses that may satisfy group requirements.

Two types of majors are offered in the mathematics department. Those intending to do graduate work in mathematics take the regular major. Those intending to teach in high school take the regular major or the teaching major.

Regular major: Mathematics 33, 34, 35, 46, 60, 97, 98, 99, 119, 120, 122, 130, 131, 152. Students that may have had the equivalent of any of the above courses will not be required to take the course. Physics 20, 21, 22, and 9 additional hours of physics or chemistry of senior college grade, chemistry 3, 4 and 5, and a reading knowledge of French or German are recommended.

Teaching majors: Must meet the requirements of the state board of education for certification on the purely educational subjects and also have mathematics 33, 34, 35, 46, 97, 98, 99, 111, 119, 120, 122, 130, 131; Physics 20, 21, 22 and chemistry 3, 4, and 5; and 9 additional hours of physics and chemistry of senior college grade.

One year of high school algebra and one year of Plane Geometry are prerequisite to all courses in college mathematics.

Mathematics A: Introduction of Algebra. For students who have had no high school algebra and for others wishing to review or prepare for certain college courses requiring this subject. No credit. Fall and Winter. Daily 8.

Mathematics B: Plane Geometry. For students who have had no Plane Geometry in high school but wish to take the course preparatory to other college work. Fall. Daily 8. No credit.


34. Algebra. For students who present but one year of high school algebra for entrance. Students presenting more than one year of high school algebra for entrance will not be allowed credit for math. 34. Three credits. Fall, M. W. F. 8, 10, 11. Winter, M. W. F. 8. Spring, M. W. F. 11.


†On leave with U. S. Navy.
Spring, M. W. F. 10.


111. Statistics. This is a foundation course in statistics. Not open to lower division students. Prerequisite, Math. 35. Five credits. Winter, Daily 11; Lab., 2-5.


120. Modern Geometry and Higher Plane Curves. Three credits. Spring.


130. Advanced Calculus. Three credits. Fall, arranged.


Modern Languages and Latin

George A. Meyer, Professor; George C. Jensen, Professor Emeritus; Thelma Fogelberg, Marion L. Nielsen, Assistant Professors.

The elementary language work is modeled on the intensive study program evolved in recent years. First-year courses in French, German and Spanish, which include two quarters' elementary and one quarter intermediate work will consist of five hours' class and six hours' laboratory per week, making a total of twenty-one credit hours for three quarters' work.

In the first year's work, the student will have received a basic training in the spoken and written language with a sufficient knowledge of the fundamental grammar structure of the language to enable him to do intensive reading in the advanced courses in his own field.

The laboratory work consists of drill in conversation, dictation and sentence building leading to composition, as well as the study of the music and other cultural and social aspects of the country.

Elementary language courses will be limited to an enrollment of twenty students in each section.

Students desiring to enroll in language classes will consult with the instructor in order to be placed to their best advantage.

To conform with national standards the faculty has ruled that no credit in a beginning language may be used towards graduation until the third quarter work has been completed.

Major in a modern language:

French. The following courses are required: 1, 2, 3, 4, 102, 103, 104 and twelve hours numbered above 104.

German. Forty-five hours of credit including 1, 2, 3, 4, 101, 102 and fifteen hours from courses numbered above 103.
21. French Pronunciation. Designed primarily for students in Music, Art, Speech and Radio Announcing. Available to others. Basic drill on pronunciation of French with special attention to the terminology and proper names encountered in the fields of music and art. Two credits. Spring, T. Th. 1. Staff

22. Italian Pronunciation. Same as for course 21. Two credits. Fall, T. Th. 1. Jensen

23. German and Spanish Pronunciation. Same as for course 21. Two credits. Winter, T. Th. 1. Jensen

FRENCH


105. French Composition and Conversation. Three credits. Winter, M. W. F. 2. Staff

106. French Short Story. A study of the French Conte as a literary form from the earliest times. The course will serve as an introduction to literary movements in France. Special emphasis on the 19th Century. Three credits. Spring, M. W. F. 2. Meyer


120. The Comedies of Moliere. A study of Moliere's plays as social criticism. Two credits. Fall, T. Th. 2. Meyer

121. French Classic Drama. A study of the plays of Corneille and Racine. Two credits. Winter, T. Th. 2. Staff

122. Nineteenth Century French Drama. Study of the Romantic and Realistic Schools. Two credits. Spring, T. Th. 2. Fogelberg

129, 130. French Literature of the 18th Century. Special emphasis on the philosophy of the period—Voltaire, Rousseau, Buffon, Diderot. Two credits each quarter. Fall and Winter. Time arranged. Staff

131. The Comedies of Beaumarchais and Marivaux. Two credits. Spring. Time arranged. Staff


GERMAN

Before registering for Beginning German, students should read carefully the descriptions of 1, 2, and 3.


4. Intermediate German. Fall. Daily 8. Five credits each quarter. Staff

104, 105, 106. Scientific German. Open to students who have had second-year German and to others by special permission. Reading of scientific texts. Five credits each quarter. Time arranged. Fall, Winter, and Spring. Nielsen


121. Lessing. Plays and Biography. Prerequisite, two years of college German or an equivalent. Two credits.

122. Schiller. Plays and Biography. Prerequisite, two years of college German or an equivalent. Two credits.

123. Die Deutsche Novelle Im 20. Jahrhundert. Representative stories by Thomas Mann, Heinrich Mann, Schnitzler, Ernst and many others. Three credits.

130. Goethe's Faust. Especially recommended for literary students and returned missionaries. Prerequisite, two years of college German. Three credits. Quarter and time arranged. Jensen


133. German Drama of the Nineteenth Century. Rapid reading and discussion of representative plays from Kleist to Hauptmann. Three credits.

150. Schnitzler's Stories and Plays. Prerequisite, German 103, or an equivalent. Two credits. Time arranged. Jensen

151. Hauptmann's Plays and Novels. Prerequisite, German 103 or an equivalent. Two credits.

152. Sudermann. Rapid reading and discussion of selected novels, novellen, and dramas. Prerequisite, German 103, or an equivalent. Two credits.

153. Thomas Mann. Novels, Novellen, and Essays. His life and philosophy receive consideration. The course will be conducted in English. Either German or English credit will be given. Three credits. Spring. Time arranged. Nielsen

SPANISH

1, 2. Elementary Spanish. Fall, Winter. Section 1, Daily 10; Section 2, Daily 8. Labs. M. W. F. 2-4. Seven credits each quarter. Fogelberg


110. Directed Reading. Readings in modern Spanish literature. Time and credit arranged. Fogelberg

PORTUGUESE

LATIN

1, 2, 3. First-Year Latin. An introductory course with special emphasis on the relation of Latin to English. Study of vocabulary and word-formation as an aid to better comprehension of our own tongue. Especially recommended for English majors and for pre-law and pre-medical students. The course includes readings from Caesar and various other Latin writers. Five credits each quarter. Fall, Winter, and Spring. 

101, 102, 103. Virgil and Cicero. Selected readings from the orations of Cicero and Virgil’s Aeneid. Also miscellaneous readings from Pliny, Catullus, Ovid and other Roman authors. During the year there will also be readings in English in the history of Roman Literature. This course is open to all students who have had one year of college Latin or two years of high school Latin. Three credits each quarter. Fall, Winter, and Spring. Time arranged.

Physics

*LEON B. LINFORD, WILLARD GARDNER, Professors; PHILLIP J. HART, E. W. PAYNE, L. S. COLE, Assistant Professors; JAY O. JENSEN, Instructor.

Mathematics 34 or equivalent must precede or parallel Physics 6, 7, 20, 21, or 22, whichever is taken first.

See pages 43 and 44 for courses that may satisfy group requirements.

Calculus and Physics 20, 21, 22 are prerequisites for all courses numbered above 100.

Suggested courses. The course taken will depend on whether the student wishes to continue with graduate work in Physics or whether he desires to teach in high school. Substitutions or changes must be approved by the head of the department. For each year, the first group of courses should be taken by all majors. Those courses preceded by (**) are for students preparing to do graduate work; and, preceded by (†), are for prospective high school teachers. A minimum of 30 senior college credits in Physics must be obtained.

Freshman Year: Physics 20, 21, 22; Math. 34, 35, 46; Bacteriology 1; Economics 51; **(5 hours Social Science); †(Sociology 70).

Sophomore Year: Math. 97, 98, 99; Chem. 3, 4, 5; **(German); †(Physiology 4; English 10; Psychology 3).

Junior Year: Physics 120, 121, 130. Math. 119, 120, 122; **(German 4 or French; English 110; 5 hours Biological Science; 5 hours elective); †(Physiology 108, Psychology 102); (Education 111, 113, 114; Speech 1; English 110).

Senior Year: Physics 145, 153, 154, one other year course in Physics; **(Math. 130, 131; Chem. 104, 105, 106; Physics 108, 193, 194, 195; English 110); †(Chem. 121; Education 127, 129a and 129b [Winter and Spring] 5 hours; Language group Electives 3-8 hours).

A Teaching Minor in Physics will be approved only for students majoring in closely related fields. Such students must complete Physics 20, 21, 22, 120, 121, 130.

1. Household Physics. Designed primarily for Home Economics Majors. The course covers selected topics in Physics of practical importance in the household, with heat and electricity receiving greatest emphasis. Five credits. Any quarter. Lect., M. T. W. Th. 1. One lab. period to be arranged.

*On leave.
3. Introductory Physics. (Credit in this course will not be allowed students who have previous college credit in Physics.) An essentially non-mathematical lecture demonstration course designed for students not majoring in the Sciences, Engineering, Agriculture, or Forestry. Students who have had high school Physics should elect Physics 6 or 7. Five credits. Any quarter. Daily 10. Jensen


Physics 6—Fall or Winter. Physics 7—Spring. Lect., M. T. W. F. 11; Quiz section, Th. 11; Lab., (One of the following periods) M. or T. 8-10, or W. Th. or F. 3-5. Jensen


20, 21, 22. Mechanics and Molecular Physics. Electricity and Magnetism. Heat, Light, and Sound. A course designed for Science majors, Engineers, and students preparing for Medicine. Recommended for majors in Agriculture who intend to do graduate work. Prerequisite, high school Physics and a working knowledge of trigonometry. Students not majoring in Physics should take this in the sophomore year. Five credits.

Sec. 1. Given in order 20, 21, 22. Lect., M. W. F. 8; Lab., M. W. 10-12, 1-3, or T. Th. 3-5. Quiz sections T. Th. 8. Payne

Sec. 2. Given in order 21, 22, 20. Lect., M. W. F. 9; Lab., M. W. 10-12, 1-3, or 3-5, or T. Th. 3-5. Quiz sections T. Th. 9. Payne

Calculus and Physics 20, 21, 22 are prerequisite for all courses numbered above 100.

Physical Chemistry. See Chemistry 104, 105, 106 and Chemistry 109, 110, 111.

At the beginning of each quarter, the schedule of the following Advanced Physics courses will be arranged to meet the requirements of all registered students.

108. Advanced Laboratory Work. Recommended for students majoring in Physics. Can be taken only by special arrangement. Any quarter. Time and credit arranged. Staff

114. Soil Physics. The fundamental laws of Physics will be reviewed, with emphasis on mechanics and thermodynamics and their relation to soil problems. Some time will be devoted to significant features of modern physics with particular reference to the theory of surface forces as they influence the behaviour of soil colloids. Special attention will be given to the dynamics of soil moisture. A knowledge of elementary Physics and Mathematics will be essential as well as a good foundation in soils. Three credits. Winter, M. W. F. 8. Gardner

120, 121. Modern Physics. (Recommended for Juniors.) A study of electrons, ions, atomic structure, and radiation. Three credits each quarter. Fall and Winter. Time arranged. Staff

130. Nuclear Physics. (To follow Physics 121.) A brief survey of methods and results of recent investigations of nuclear processes. Three credits. Spring. Time arranged. Staff


166, 167. Geometrical and Physical Optics. Three credits each quarter. Fall and Winter.


182. Electronics. The concept of the electron, its relation to the structure of the atom, to the conduction of electricity, to ionization, to photoelectric and thermoelectric effects, etc. Emphasis will be placed on the design and construction of electronic measuring equipment for the modern research laboratory, for communication, and for the numerous controls in the modern factory. Three lectures; one lab. Four credits each quarter.

190, 191, 192, (290, 291, 292). Theoretical Physics. Two or more credits each quarter. Fall, Winter, and Spring. Time arranged.

193, 194, 195, (293, 294, 295). Seminar in Physics. A weekly meeting of staff and Physics majors, consisting of reports on recent developments in Physics. Students may register and receive credit for course by making reports. One credit each quarter. Fall, Winter, and Spring. Time arranged.

250. Research in Physics. Time and credit to be arranged before registration. Any quarter.

Upon sufficient demand, courses numbered 120-180 will be extended to cover more advanced work. Numbers will follow in consecutive order. Graduate credit may be given for certain extended courses taken by graduate students upon completion of extra work. In such cases the number will be the corresponding "200" number.

Physiology, Public Health and Hygiene

W. B. PRESTON, Professor; WILLIAM SCHOLEs, Instructor; ANN BURNS, Assistant.

A minimum of 30 credits is required for a major in the Department of Physiology, Public Health, and Hygiene. The following courses should be taken by all majors in the department: 101, 102, 103, 108, 109, 121, 122, 123, 160, 19L. Other courses taken in the department will depend upon the direction of the student's interests. Supporting courses will be in Chemistry, Physics, Zoology, Bacteriology, Nutrition and Sociology.

†4. General Physiology. A course for the student who desires a survey of physiology and who is not planning on advanced intensive study in the field. It deals with the functioning of the human body with emphasis upon broad, general biological principles. Five credits. Fall, Daily 8, 10, 11, 2; Winter, Daily 9, 10, 11; Spring, Daily 8, 9, 11. Staff

†4a. Anatomy and General Physiology. A continuation of course 4 giving more emphasis to structure and including laboratory exercises. Primarily for nurses. Five credits. Winter, Daily 10. Staff

†5. Physiological Tests. A course of standard physiological tests illustrating fundamental principles of Physiology and should be accompanied by or preceded by General Physiology 4. One credit. One day per week 2-5. Any quarter. Staff

11. Personal Health. This course is designed to meet the health problems of the college student. Two credits. Fall, T. Th. 9; Winter T. Th. 9; Spring T. Th. 11. Staff

14. Child Hygiene. The growth, development and health of the child from birth through the elementary school years will be studied in this course. Three credits. Fall, and Winter, M. W. F. 9. Staff

†Students planning to register for Physiology 121, 122, 123 should not take these courses.
50. First Aid. The standard American National Red Cross course in first aid with emphasis upon the practical use of the knowledge as applied to everyday life in various occupations. Detailed demonstrations and practice. The American Red Cross First Aid certificate may be obtained by students in the course who pass a satisfactory examination. Three credits. Winter, M. W. F. 11. 

Preston

101, 102. Anatomy and Histology. Basically a didactic course in the macroscopic and microscopic structure of the human but with demonstration material and applied study. Five credits each. 

Staff


Staff

104. Kinesiology. A study of articulations and muscles with an analysis of movements and actions. The skeleton, manikin and man himself will afford the laboratory material. Three credits. (Recommended as preparation for this course, Anatomy 101, 102.) Spring, M. W. F. 10. 

Staff

108. Health in the Secondary School. This course is designed to acquaint the prospective secondary school teacher with the modern principles of hygiene. The several approaches to positive health and health in the secondary school will be developed. (Meets state Secondary School certification requirements in health education.) Five credits. Fall, Daily 11; Winter, Daily 2. 

Staff

109. Community Health. A study of the organization and functioning of official and non-official health agencies in the fields of maternal, infant, preschool, school and adult hygiene in the light of modern trends and present social needs. Local health problems, especially rural problems, will be analyzed. Three credits. Spring, M. W. F. 11. 

114. The Elementary School Health Program. This course is designed to meet the practical needs in health and health training in the elementary school. It will include methods and materials in health training and instruction. (Meets state Elementary School certification requirements in health education.) Three credits. Spring, M. W. F. 11. 

Staff


Staff

121, 122, 123. Physiology. A year's course in technical physiology designed for students desiring an intensive and detailed study of physiology. Unless special permission is granted the three courses are to be taken in sequence. As preparation, physics and organic chemistry are recommended. 


Staff


Staff

123. Regulation of body temperature, the skin, sense organs, nervous system, reproduction. Three credits. Spring, T. Th. 10; M. 2-5. 

Staff

145. Mental Hygiene. This course deals fundamentally with an analysis and appraisal of factors in the mental health of the normal individual as an aid in the development and conservation of a high level of mental health. Personality aberrations are considered in order that the normal may be more fully understood. Three credits. Winter, M. W. F. 11. 

Staff

150. Physiology Laboratory. Technical laboratory work for students who have had General Physiology 4. (Not open to students who have taken 121, 122, 123.) Credit (1-4) and time arranged. Any quarter. 

Staff

160-260. Physiology Experimentation. Special investigations in physiology are carried out in this laboratory course. Open to students who have taken 121, 122, 123, or who have been granted special permission. Credit (2-5) and time arranged. Spring quarter. 

Staff
104  UTAH STATE AGRICULTURAL COLLEGE

180-280. Advanced Physiological Hygiene. Special problems in hygiene are considered in this course. Previous work in physiology and hygiene are recommended as preparation. Three credits. Winter, M. T. W. 1.

190-290. The Administration of the School Health Program. This course, designed for supervisors of school health, deals with the organization and ad-


Speech

CHESTER J. MYERS, Professor; HALBERT GREAVES,* FLOYD T. MORGAN,* JOHN M. HADLEY,* Assistant Professors; MR.———, MISS———, Instructor.

Before a student may begin Upper Division work with a view to majoring in Speech, he must have completed with a “B” average any necessary prereq-
site Lower Division courses; must have completed all requirements of the Lower Division groups. Majors must maintain a “B” average in Speech courses.

It is recommended that all Speech majors take Speech 1 and 4 as part of their Language and Arts group requirements. Any person who intends to major in Speech must take Speech 6 no later than his junior year, preferably not later than his sophomore year. In addition, fifty hours of Speech are to be completed for the major. For prospective teachers, the distribution of these hours is to be as follows: Courses in Public Speaking, 10 hours (Speech 2 or 109 required of all majors); Courses in Interpretation, 10 hours (Speech 124 required of all majors); Courses in Pathology, 5 hours; Courses in Dramatic Literature, 5 hours; Courses in Play Production, 10 hours; Elective Courses in Speech, 10 hours. Students who do not intend to teach may apply for permission to substitute courses in their special fields of interest for some of those in this outline. A special major for students whose main interest is Speech Correction may be outlined by consultation with Dr. Myers.

All Speech Minors are advised to complete Speech 1 and 4 as part of their Language and Arts group requirements, and must take Speech 6 no later than their junior year. In addition, the minor must include courses in Public Speaking, 5 hours; Courses in Interpretation, 5 hours; Courses in Play Production, 5 hours; Elective Courses in Speech, 3 to 5 hours.

Speech 123 is recommended for those who are planning to teach Speech.

Composite English-Speech Major. Students whose major interests are divided between English and Speech may take a composite English-Speech major. Such a major relieves the student of all requirements for a minor. This combination is recommended highly. Consult with the Head of the English Department and the Head of the Speech Department.

1. Fundamentals of Speech. Foundational elementary Speech training includes training and application in common daily speech and speaking situations, voice improvement, and clear, distinct utterance. Clinic assistance available to the students of this course who need it. Time for clinical assistance to be arranged. Five credits. Fall, Winter, Spring. Daily 9, 10, 11.


5. Extempore Speech. Designed to meet the specific needs of professional groups in the practice of their profession. Basic principles of effective speaking, with emphasis on composition and delivery of the forms of address of greatest interest to those for whom the course is provided. Three credits Fall, M. W. F. or T. Th. F. 10. Winter, M. W. F. or T. Th. F. 9.

*On leave.
6. Introduction to the Field of Speech. A course designed to acquaint the prospective Speech major with the scope of the field of speech and dramatic art. Students who intend to major in speech must take this course not later than the junior year, and should take it their sophomore year. One credit. Winter, W. 1. Myers and Staff

7. Basic Principles of Voice Technique. A training course, adapted to individual needs and abilities. Exercises for flexibility of voice, articulation, and pronunciation. Recommended for all Speech majors and minors, for prospective teachers, and all others whose individual needs cannot be met successfully in Speech 1 or other courses in public speaking and oral interpretation. Five credits. Spring, Daily 10. Staff

12. Private Instruction. Individual attention given in private to particular needs of the student in an effort to eliminate personal defects, develop skill, and solve individual speech problems. Recommended for anyone needing personal speech and to freshmen and sophomores majoring in speech. Special fee. Two to four credits. Any quarter. Time arranged. Staff

13 or 113. Debate. This course is designed primarily for candidates for the junior debate team, though registration is not limited. It provides study of procedure in argumentation and debate, and offers opportunity for preparation and presentation of debates on subjects chosen for inter-collegiate competition. Some presentation of discussions on current events before community audiences. Only one quarter’s credit each year may be used toward graduation. Students should register fall quarter if possible. Three credits. Fall, Winter, M. W. F. 2. Hayward

16. Dialect. A study of the most prominent dialect forms, their principles and uses. The dialect work of such writers as Burns, Kipling, Drummond, Riley, Dunbar, Harris, and Kirk will be studied, discussed, and learned. Three credits. Fall, M. W. F. 11. Myers

17. The Scientific Bases of Speech. Special consideration given to voice quality, rate, intensity, and pitch from the standpoint of vocal structure and function, the physics of voice, and phonetics. Recommended for all students of Speech, and required of majors in Speech Correction. Three credits. Staff

18. Story Telling. The story as an educational factor; analysis and classification of typical stories with reference to each period of the child’s development. Study of sources; adoption of material; and actual practice in story telling. Consideration is given to stories of western pioneer life. The work is designed to meet the needs of student, teacher, recreational leader, church activity leader, librarian, and parent. Five credits. Fall and Spring, Daily 10. Myers


25. Speech Composition. Advanced theory and practice of public speaking. Three days a week will be devoted to the delivery of speeches built by the students, two days to the study of selected masterpieces from the world’s oratorical literature, with special reference to the principles of speech composition and the historical backgrounds of the masterpieces. Five credits. Winter, Daily 10. Myers

45. Acting: The One-Act Play. The literature and acting technique of the one-act play. Plays from such authors as Eugene O’Neill, Paul Green, Sir James Barrie, Maurice Maeterlinck, Lady Gregory, Lord Dunsany, J. M. Synge, William Butler Yeats, and others will be studied and prepared for public presentation. Three credits. Winter, M. W. F. 2-4. Staff

60. Drama Appreciation. An introduction to the understanding and appreciation of dramatic literature, radio plays, moving pictures. Selected readings concerning the contributions to the theatre by great personalities—actors, directors, producers, writers, designers, technicians, etc.—will be studied. Five credits. Winter, Daily 10. Staff
75. Remedial Speech. This course is intended for those who have a noticeable difficulty with speech, in articulation, quality, pitch, intensity, or rhythm. Fall, Winter, and Spring. Time and credit arranged. 

81. Radio Speech. A study of speech in radio presentation. Radio programs made up of the various types of radio speaking—announcing, interview, round table, quiz, drama, folk, panel, news casting, etc.—will be planned and presented. An effort will be made to broadcast quality work over the local radio station. Three credits. Fall and Spring, M. W. F. 2-4. 

107. Speech Hygiene. The techniques of normal speech and the development of normal and abnormal speech. Major consideration will be given to the prevention and correction of speech abnormalities. This course is primarily designed to fulfill the speech hygiene needs of elementary school teachers. It is recommended for all secondary teachers but will not fulfill the speech pathology requirement for Speech majors. This course is required of all elementary school teachers by the State Board of Education. Three credits. Fall, M. W. F. 8. Spring, M. 4:30-6:30. 

109. Public Discussion. Application of the various group discussion techniques to current problems. The open forum, the round table, the discussion conference, and other techniques for interchange of opinion are used. Approximately five current problems are discussed. Efforts are made to have some of the problems presented by members of the class to various civic and religious organizations or to release them over a commercial radio station. Three to five credits. 

110. Public Programs. A study of types of interpretive material suitable for presentation before various kinds of audiences. Reading of short stories, plays, and novels to determine suitability. The cutting of literary types and material to suitable form and length for public reading. Three credits. 

111. The Psychology of Speech. A study of the principles of psychology which underlie speech. Problems to be considered include the nature and origin of speech, emotion and speech, personality and speech, the development of speech and language in the child and the psychology of the audience. Three credits. Spring, M. W. F. 10. 

112. Private Instruction. Advanced specialized work. Special attention is given to the student's deficiencies in speech. Work in the story, drama, novel, poetry, and the various literary forms. It is recommended that all Speech majors have five hours. Consult instructor before registering. Special fee. Two to eight credits. Any quarter. Time arranged. 

123. Pedagogy of Speech. A study of the methods and problems peculiar to the teaching of Speech. A study of the organization of courses and lesson plans is included. Students may register only with the permission of the instructor. Two credits. Winter, T. Th. 11. 

124. Advanced Interpretation. The mastering of significant selections from the great writers. The student grows in power to interpret permanent literature. Reading from manuscript and from memory. Four credits. Spring, M. T. W. Th. 11. 

150 a, b, c. Drama Production. A course designed to equip students with a working knowledge of the materials and processes of play producing, directing and acting. Such principles and problems as characterization, compositional picturization, movement, emphasis, preparation of the manuscript, play selection, casting, rehearsal organization and procedure, dramatic criticism, scenic design and construction, lighting, costuming, make-up, management, advertising, etc., will be considered. Those who plan to become directors of school and community drama should find this course useful. Students will act in, direct and stage one-act plays, and will be assigned to work on staffs and crews of College-Community Theatre major productions. Prerequisite: Speech majors and minors, none; others, see instructor. Speech majors and minors should arrange to register all three quarters during one year. Three, four, or five credits each quarter. Fall, Winter, and Spring. Class meets T. Th. 2-5 for three credits. Students who register for four or five credits will meet at other times to be arranged, and will work on additional production problems. $2 lab fee for the year.
154. Children's Theater. Creative dramatics for children. A course in educational dramatics for students who wish to prepare to direct children in dramatic work. A study will be made of plays suitable for primary and intermediate schools. Courses in dramatics will be outlined, stories dramatized, and plays produced. The College Training School will afford opportunity for this work. Of special interest to prospective elementary school teachers. Consult instructor before registering. Three to five credits. Time arranged. Myers

171. Speech Pathology (1). A comprehensive presentation of the generally known facts regarding the symptoms, nature, prevention, causes, and management of deviations from normal speech. This course is a highly technical course designed for teachers of speech and speech clinicians. It is required of all Speech majors, all those taking a composite Speech and English major and is elected by all majors in Psychology. Five credits. Staff

173. Speech Clinic (1). Application and discussion of methods applied to speech correction in the clinic. Training and practice through the supervised handling of selected cases. Students who have had one quarter of experience are allowed to participate in extension clinics. Prerequisite or corequisite, Speech 171. Consult the instructor for permission to register. Any quarter. Time and credit arranged. Staff

183. Problems in Speech. Especially selected work, individually assigned, handled, and directed in consultation with the student. Special Speech problems of merit and of mutual interest to students and instructors are investigated and reported upon in this course. Consult the instructor for permission to register. Any quarter. Time and credit arranged. Staff

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Zoology and Entomology

D. M. Hammond, G. F. Knowlton, Professors; C. J. Sorenson, J. Sedley Stanford, G. H. Kelker, Associate Professors.

See pages 43 and 44 for courses that may satisfy group requirements.

Students specializing in Zoology and Entomology must select either Zoology or Entomology as a major.

For a major in Zoology students must take the following courses: 3, 4, 13, 106, 112, choice of 2 of the following 3 courses: (114, 115, 116); 117, 118, 119, 124, 125, 126, 131. For a major in Entomology students must take the following courses: 3, 4, 13, 101, 102, 103, 106, 108, 111, 114 or 116, 115, 124, 125, 126.

Majors in Zoology or Entomology must complete at least 30 hours in the following: Chem. 3, 4, and 5, or 10, 11, and 12; 15 hours. (At least 10 hours.) Physics 3; five hours. Botany 21, 22, 23; nine hours; (At least 6 hours.) Bact. 1 and 2; five hours. Geol. 1; five hours. Entomology majors add Botany 130, three hours.

For a detailed schedule of courses leading to an entomological major in the school of Agriculture, see page 71.

For premedical major in Zoology, see page 82.

Students who intend to do graduate work in Entomology or Zoology are advised to study German for at least three quarters, and French for three quarters and complete the course in Math. 111 or Agron. 115.

1. Principles of Biology. A fundamental course in the basic life principles as illustrated in both plant and animal forms. Special attention will be given to the nature and structure of protoplasm, differentiation in plant and animal cells, adaption, reproduction and development, basic metabolic processes, heredity and evolution, types and phylogenetic relationships as exhibited in the major groups of plants and animals. For junior college students, except those who may elect Botany 21, 22 and 23, or Zoology 2 or 3 and 4. Five credits. Winter, Daily 8. Hammond
2. General Zoology. A brief survey of the more important groups of animals, including the organization, behavior, reproduction, classification and relationships of each group. The basic principles of greatest importance in the field of Zoology will receive some consideration. This course is especially designed to meet the needs of students in the schools of Agriculture and Forestry for a basic course in Zoology. Five credits. Spring, M. W. F. 10; Lab., 1 Th. 2-5.

3. Invertebrate Zoology. This course is an introduction to the invertebrate animals. Classification and relationships, structural characters, development and functions are emphasized. Some attention is also given to parasitism. The course is well adapted for premedical students, Forestry (Wildlife) majors, and others who desire a comprehensive introduction to the animal kingdom. Five credits. Fall, M. W. F. 9; Lab., M. W. 2-5.

4. Vertebrate Zoology. The same general plan as given in course 3 is followed in the study of the vertebrates. Some attention is given to the local fauna. Five credits. Winter, M. W. F. 9; Lab., M. W. 2-5.

13. General Entomology. The structure, classification, interrelationships, and life histories of insects are studied. Some field trips are taken. This is a fundamental course and is required of all department majors. Five credits. Fall, M. W. F. 8; Lab., T. Th. 2-5.

101. Insect Morphology. Comparative study of insect anatomy with emphasis placed on the structures used in taxonomy. Prerequisite, Zoo. 103. Requires for Zoo. 103, and 104. Four credits. Two laboratory periods, time arranged. Winter, M. W. 11.

102. Systematic Entomology. Zoo. 101 is prerequisite. Each student must collect, mount, and label a representative collection of insects. The collection must contain at least 300 specimens, at least 100 species, and at least 15 orders. The whole collection must be arranged in phylogenetic sequence. Classification will include only a correct placing of all specimens in orders. To be taken only with permission of the instructor. Three laboratory periods. Three credits. Fall quarter. Time arranged.

103. Systematic Entomology. Continuation of Zoo. 102. The collection arranged for Zoo. 102 must be enlarged to 500 specimens, 150 species, 100 families, and 18 orders. Classification will include a correct placing of all specimens in families. Graduate credit allowed. To be taken only with the permission of the instructor. Three laboratory periods. Three credits. Any quarter. Time arranged.

104. Systematic Entomology. Continuation of Zoo. 103. Permission to take this course depends on the student's collection for Zoo. 102 and 103. If his collection justifies further study, he may select one or two orders of insects and classify them to species. Graduate credit allowed. To be taken only with the permission of the instructor. Three laboratory periods. Three credits. Any quarter. Time arranged.

105. Forest Entomology. A study of the principal insects attacking forest and forest products. Some attention is also given to the principles of biological control. A brief study is made of forest vertebrates with emphasis on insect-eating birds. Three credits. Fall, T. 9, Lab., T. Th. 11-1.

106. Zoological Literature. The historical development of Zoology and Entomology, their literature and bibliographies are discussed. Each student is assigned, or may choose, a report on the literature of some insect or other animal. Prerequisite, two or more of the fundamental courses required of department majors. Graduate credit may be allowed for this course. One lecture and one lab. Two credits. Spring, M. 11, one hour arranged.

108. Agricultural Entomology. The recognition, life history, and control of the major insect pests of agricultural crops are studied. Particular attention is given to the injurious and the beneficial insects of Western North America and of Utah. Four credits. Winter, M. W. F. 8; Lab., W. or F. 2-5.

111. Heredity and Eugenics. A non-technical study of the more evident behavior of the germ cells in reproduction, experimental hybridization, and the simpler principles underlying the inheritance of traits. Consideration is given to the eugenic value of human races, inferior and superior families, sexual selection and marriage, birthrate, immigration, and other principles having eugenic significance. Four credits. Fall, or Winter, M. T. W. Th.

Hammond

112. Principles of Genetics. A technical study of the cytological and experimental bases underlying heredity and variation. This course is a fundamental requirement for all students of plant breeding, animal breeding, or human heredity. It considers qualitative and quantitative traits, factor independence, interaction, linkage relations, gene and somatic mutations, sex-determination and modification, and related subjects. Students taking this course must have the Zoo. 111 or some good general course in Biology. Graduate credit allowed. Five credits. Fall, Daily 10.

Hammond

114. Protozoology. A survey of the phylum Protozoa, with emphasis on the forms parasitic upon man, and domesticated and wild animals. The structure, physiology, and reproduction of the Protozoa are considered in relation to these aspects of cells generally and to the field of Biology as a whole. In the laboratory the protozoan forms of local streams and ponds are studied, as well as the forms living on and in other animals and man. Graduate credit is allowed for this course. Prerequisite, Zoo. 3. Three credits. Fall, T. Th. 8; Lab., W. 2-5.

Hammond

115. Medical and Veterinary Entomology. This course introduces the students to those Arthropods that annoy and transmit disease to man and domesticated and wild animals. Vectors of plague, spotted fever, tularemia, malaria and other Arthropods carrying disease will receive major attention. Prerequisite, Zoo. 13 or equivalent. Four credits. Winter, T. Th. 8; Lab., T. Th. 2-5.

Stanford

116. Parasitology (Helminths). A study of the worms parasitic on man, domestic and wild animals, and a consideration of the diseases caused by them. The flukes, tapeworms and roundworms, occurring in this region and in the tropics, will be emphasized. The study includes diagnosis, life histories, transmission, treatment and prevention of the important diseases caused by worms. Prerequisite, Zoo. 3. Three credits. Spring, M. W. 9; Lab., W. 2-5.

Hammond

117. Methods and Elements of Animal Histology. An introduction to the techniques employed in making preparations of animal tissues for microscopic study, and a consideration of the structural characteristics of the tissues and principal organs in representatives of the groups of animals, especially vertebrates. Four credits. Fall, T. Th. 9; Lab., T. Th. 2-5.

Hammond

118. Vertebrate Embryology. An introduction to the principles of development of the vertebrates, including the formation of gametes, fertilization, cleavage, gastrulation, formation of germ layers, establishment of body form, and organogenesis. In the laboratory the development of the frog, chick and pig is studied. Required of premedical students. Prerequisite, Zoo. 4 or equivalent. Five credits. Winter, M. W. F. 10; Lab., M. W. 2-5.

Hammond

119. Comparative Anatomy. A study of the fundamentals of structure of the vertebrate body. The anatomy of typical representatives of each class of vertebrates and the organ systems from the simplest to the most complex forms are studied on a comparative basis. In the laboratory, the shark and the cat are thoroughly dissected. This course provides useful training for premedical as well as Zoology majors. Prerequisite, Zoo. 4 or equivalent. Graduate credit allowed. Four credits. Spring, T. Th. 8; Lab., T. Th. 2-5.

Hammond

121. Ornithology. A course in bird study planned to acquaint the students with our native birds and with the class Aves (birds) in general. Identification, relationships, structure, habits, and distribution will be studied in classroom, laboratory, and field. Four credits. Spring, T. Th. 9; Lab., T. Th. 10-12.

Stanford
122. Mammalogy. This course is designed to introduce the students to the large and very important class, Mammalia (animal), with particular reference to Utah and North American species. Identification, distribution, structure, habits, and economic importance will be stressed. Four credits. Winter, T. Th. 9; Lab., T. Th. 10-12, and one arranged.

123. Nature Study. Teachers and other students of nature will learn the names of birds, mammals, frogs, reptiles, fishes, insects, etc., in this course, also interesting and useful facts concerning their habits, homes and use to man. Display methods will be discussed and illustrated. This course will aid teachers in identifying their local animal life and in making study collections for their schools. Three credits. Spring, T. Th. 1; Field trips and Lab. F. 24 or Sat. arranged.

124, 125, 126. Seminar. The students and the faculty of the department meet for one hour each week and hear reports from the members of the seminar on topics of mutual interest. Students majoring in the department must attend and participate in the activities of this seminar for at least three quarters. The Winter quarter of each year will be especially concerned with entomological subjects. One credit each quarter. Fall, Winter, and Spring. Time arranged.

131. Organic Evolution. A critical study of the facts of evolution as obtained from a careful study of comparative anatomy, embryology, geographical distribution, blood tests, and other fields upon which the doctrine of evolution is based. Factors causing evolution will be considered and discussions will be undertaken on other bodies of related thought. Prerequisite, some thorough course in Biology. Graduate credit allowed. Three credits. Spring, M. W. F. 8.

138. Aquatic Entomology. Identification, distribution, life histories and adaptations of aquatic insects will be studied with particular reference to our local streams and lakes. Three credits. Two lectures, one Lab. Spring, M. W. 1; Lab. M. or W. 2-5.

155. Ichthyology. Ecology, classification, and life histories of native and introduced fishes. Two lectures. One laboratory. Field trips. Three credits. Fall, T. Th. 9; Lab., Th. 2-5.

199. Minor Problems in Zoology or Entomology. A course in research problems similar to Zoo. 201 and 210, but intended primarily for undergraduate majors in Zoology and Entomology and for graduate work on problems of a less advanced nature. Any quarter. Time and credit arranged.

201. Zoological Research. The student who wishes to engage in some line of original research and is qualified to do so may elect and study some topic from eugenics, ecology, morphology, or other branch of Zoology. Open to undergraduates only by special arrangement with the department. Thesis required. Any quarter. Time and credit arranged.

205. Methods of Research. For students doing or intending to do original work in some line of Zoology or Entomology, this course offers instructions on the selection of topics for research, organization of attack upon problems, methods of finding previously published work, outlining the problem, illustration of the thesis, etc. Required of graduate students who are working for a Master's degree in the department. One credit. Winter. Time arranged.

210. Entomological Research. Students may select or will be assigned certain problems dealing with different phases of Entomology. The amount of credit will depend on the nature of the problem and the time spent. Thesis required. Open to undergraduate students only by special permission. Prerequisites, Zoo. 13, 102 and 108. Any quarter. Time and credit arranged.

217. Advanced Histological Technique. A continuation of Zoology 117 for graduate students, and for students who wish a more thorough and extensive training in the techniques of preparation of biological materials for study. Additional techniques such as the celloidin method, freezing method, embalming and injection of specimens, etc., will be undertaken. Prerequisite, Zoo. 117. Two credits. Spring, M. 2-5, one Lab. arranged or time arranged with the permission of the instructor.
# SCHOOL OF COMMERCE

*W. L. Wanlass, Dean*

<table>
<thead>
<tr>
<th>Program</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-legal Training</td>
<td>112</td>
</tr>
<tr>
<td>Training for Government Service</td>
<td>112</td>
</tr>
<tr>
<td>Agricultural Economics and Marketing</td>
<td>113</td>
</tr>
<tr>
<td>Business Administration</td>
<td>115</td>
</tr>
<tr>
<td>Accounting</td>
<td>117</td>
</tr>
<tr>
<td>Business Administration</td>
<td>118</td>
</tr>
<tr>
<td>Merchandising</td>
<td>119</td>
</tr>
<tr>
<td>Economics</td>
<td>120</td>
</tr>
<tr>
<td>Political Science</td>
<td>123</td>
</tr>
<tr>
<td>Secretarial Science</td>
<td>125</td>
</tr>
<tr>
<td>Sociology</td>
<td>128</td>
</tr>
<tr>
<td>Social Work</td>
<td>130</td>
</tr>
</tbody>
</table>
General Information

The purpose of the School of Commerce is to give opportunity for a liberal education with special emphasis upon the commercial, social and political phases of life. Persons who complete the courses offered in this School are prepared to assume leadership and responsibility in business and in various industries and professions. In order to meet the growing demand and to keep pace with recent tendencies in education, students may major in Accounting, Business Administration, Merchandising, Secretarial Science, Economics, Political Science, Sociology, Agricultural Economics and Marketing.

For the professions of law and medicine some of these subjects such as Economics or Political Science afford excellent preparation. Graduates are prepared for positions as teachers in high schools. Many desirable positions as industrial managers are open to those who are qualified by training and experience. Many students who are especially qualified find employment in the field of retail and wholesale merchandising.

Special attention is called to the many opportunities for service in sociological and governmental work. (See Training for Government Service.) The Departments of Political Science and Sociology offer basic and professional courses in these fields.

For requirements for admission, certification, and graduation see pages 39 to 48.

NOTE: All students in the School of Commerce are urged to take Textiles and Clothing 15 and Principles of Nutrition 5.

Pre-Legal Training

Students who plan to go into the profession of Law may pursue a course of study, primarily in the School of Commerce, that will not only enable them to meet all entrance requirements in any American Law School, but will also form an excellent foundation for the study of law.

Some law schools admit only college graduates. Others admit students on the basis of three years of college training. College graduation is desirable even where it is not required for admission.

Prospective law students may major in any department in the School of Commerce, but not less than fifteen credit hours of work should be done in each of the following fields: Accounting, Economics, Political Science, Sociology, History and English, in addition to meeting the requirements for graduation in the Major Department.

All pre-legal students should consult Professor M. R. Merrill.

Training for Government Service

The Federal Government during recent years has employed increasing numbers of College-trained men and women who are qualified for service in its various departments. In all probability this expansion of governmental activity will continue for several years. In suggesting the following courses the School of Commerce has attempted to indicate lines of study which will be helpful in preparing for government service. With slight modification, these courses will serve equally well to qualify the student for desirable positions outside the field of government service, as the basic requirements in both fields are similar.

Suggested Courses

I. Accounting: Accounting 1, 2, 26, 29, 101, 102, 103, 104, 105, 111, 120, 121, 127; Political Science 129.
II. Land Economics: Economics 28, Economics 51-52 or Agricultural Economics 53a, b; Agronomy 6; Political Science 1, 10 and 129; Business Administration 141; Agricultural Engineering 10; Geology 3.

In addition the student should satisfy the requirements for a major in Agricultural Economics.

III. Marketing: Economics 28, 51, 52; Mathematics 30, 60, 111.

Agricultural Economics:

The student should satisfy the requirement for a major in this department.

In addition a thorough preparation should be made in the special fields in which it is desired to work such as wool, dairying, etc.

IV. Consular and Diplomatic Service: Political Science 10, 11, 12, 13, 101, 102, 104, 105, 106, 107, 129; Foreign Language, German, French, or Spanish, depending upon the location desired; English 10 or 11, 112; Economics 51, 52, 140.

V. General Administrative Training:

It is felt that anyone contemplating government service should have an intimate knowledge of the workings of our government and its relationship to industry. To supply that need the following courses are suggested: Political Science, 10, 103, 129; or 140 or 145, 200; Economics 125, 147.


VII. Secretarial Science: Secretarial Science 30, 65, 80, 81, 82, 89, 90, 91, 94, 98, 175, 183, 184, 185, 186, 187; Business Administration 1, 2, 25, 101, 185; Economics 51, 52, 140; Political Science 10, 129; Sociology 70.

VIII. Sociology:

For Case Work:

Psychology 102a, 102b, 103a and 103b, 110.
Child Development 140.
Sociology 52, 70, 102, 140, 162, 170, 172, 220.

For Social Research:

Mathematics 30, 35, 60 and 111.
Sociology 70, 202, 220.
Thirty hours of factual courses in the Department.

Field Work under supervision.

IX. Economics: Mathematics 30, 34, 60, 111; Economics 27, 28, 51, 52, 131; Sociology 70. And the courses listed for those majoring in Economics.

**Agricultural Economics and Marketing**

(Administered jointly by the School of Agriculture and the School of Commerce)

W. P. Thomas, Professor; G. T. Blanch, H. H. Cutler, Associate Professors; Dee A. Broadbent, G. A. Carpenter, Assistant Professors.

Students majoring in the Department of Agricultural Economics and Marketing may be graduated from either the School of Agriculture or the School of Commerce. The choice of school in which to register should be determined by the field in which the student intends to do his minor work.
Those graduating from the School of Agriculture must satisfy requirements
for graduation from that School in addition to other courses prescribed by
the major professor; those graduating from the School of Commerce must,
in addition to satisfying the requirements for graduation from that school,
include certain basic agricultural courses to be prescribed by the major professor.

In order to meet the requirements of students who plan to do graduate
work or to enter into a field of employment where technical training is re-
quired, a special course has been provided for such students majoring in
agricultural economics. Students satisfying requirements as prescribed for
this course may graduate from either the School of Agriculture or Commerce.
A schedule for this prescribed course may be obtained from the office of the
Department of Agricultural Economics.

An adjustment in courses, sections, and subject matter may be made to
accommodate returning soldiers and other students providing there is a suffi-
cient number of students interested to warrant the change.

Rural Economy

53a and 53b. Principles of Economics. An introductory course in basic
principles of Economics with emphasis on those principles which are of par-
ticular importance in the field of Agriculture and Forestry. Three credits
each quarter.

53a. Fall, Section 1, M. W. F. 10; Section 2, T. Th. 9, F. 12. Winter,
Section 3, T. Th. 8, F. 12. Cutler

53b. Winter. Section 1, M. W. F. 10; Section 2, M. 12, T. Th. 11. Spring
Section 3, M. W. F. 10. Cutler

54. Principles of Agricultural Economics. An introduction to the field
of agricultural economics with emphasis on the application of economic prin-
ciples to the solution of agricultural problems. Three credits. Fall, M. 12,
T. Th. 11. Cutler

104. Economic Development of Agriculture. An economic analysis of the
geography and use of agricultural resources with special reference to the
United States. Three credits. Fall, M. 1, T. Th. 10. Blanch

230, 231, 232. Public Problems in Agriculture. Seminar courses designed
to familiarize students with the economic implications of problems confront-
ing agriculture. Special references will be made to war and post-war problems
in agriculture. Two credits each quarter. W. 3-5. Thomas and Blanch

Farm Management, Land Economics and Agricultural Finance

70. Farm Accounts. Farm accounts and their application to the organization
and management of farms and to the filling of income tax statements.
A fee of $1 will be charged for materials supplied. Three credits. Fall and
Winter, T. Th. 11-1. Broadben

102. Principles of Farm Management. A study of the principles underlying
the organization, management, and financial success of farms. Rates of pro-
duction, labor efficiency, combination of enterprises and farm layout will be
discussed. A fee of $1 will be charged for materials supplied. Three Credits.

105. Agricultural Finance. A study of principles of agricultural credit.
Emphasis is given to problems and methods of financing agriculture. Three
credits. Fall, M. W. F. 11. Cutler

106. Land Economics and Utilization. A study of the economic principles
underlying the utilization, valuation and tenure of agricultural land. Attention
is given to prevailing land policies and to methods and techniques involved
in dealing with problems of land use. A fee of $1 will be charged for materials

202. Advanced Farm Management. Designed primarily to give students
advanced training and experience in farm management. Prerequisite, Agri-
SCHOOL OF COMMERCE

cultural Economics 102. A fee of $1 will be charged for materials supplied. Three credits. Winter, T. Th. 3-5.  

206. Land Appraisal and Classification. A basic course in land appraisal and economic classification of land. Two credits. Spring, T. Th. 3-5.  

Marketing and Prices


113a. Farm Cooperatives. A course in principles underlying the organization, operation and management of cooperative sales, purchasing and service associations. Three credits. Winter, T. Th. 11, F. 12.  

113b. Analysis of Farm Cooperatives. For students who desire detailed work in organization and management of cooperatives. Prerequisite, Agricultural Economics 113a. A fee of $1 will be charged for materials supplied. Two credits. Winter, T. 2, F. 3-5.  

114. Marketing Fruits and Vegetables. The production and marketing factors as they relate to the marketing of fruits and vegetables with special reference to Utah conditions. Three credits. (Not given 1945-46.)  

116. Marketing Livestock and Livestock Products. The production and marketing factors as they relate to the marketing of livestock and livestock products with special reference to Utah conditions. A fee of $1 will be charged for materials supplied. Three credits. Fall, M. W. F. 10.  

120. Agricultural Prices. The relationship between agricultural and non-agricultural prices and income, together with the state and national agricultural outlook reports, will be given consideration. Three credits. Winter, M. W. F. 11.  

121. Price Analysis. A study of statistical and other methods used in analyzing prices and other economic data. A fee of $1 will be charged for materials supplied. Three credits. Spring, M. W. F. 11.  

Special Graduate Courses

210. Research Methods in Agricultural Economics. A fee of $1 will be charged for materials supplied. Three credits. Spring, M. F. 3-5.  


215. Special Problems in Agricultural Economics. Any quarter. Time and credit arranged.  

Business Administration
( Including Accounting and Merchandising)

P. E. Peterson, Professor Emeritus; V. D. Gardner, W. L. Wanlass, Professors; L. Mark Neuberger,* Clara P. West, Ina Doty, Alfred W. Swinyard,* Assistant Professors; Ruth Richards, Instructor.

Students majoring in the Department of Business Administration and Accounting may concentrate in the fields of Accounting, Finance, Management, Merchandising, and Secretarial Science. Students are advised to select from the courses listed below to complete their major and technical subjects according to their field of concentration. (Students majoring in the field of Secretarial Science should register under the advice of the Instructional Staff for Secretarial Science.)

*On leave.
# RECOMMENDED COURSES FOR MAJOR AND SPECIAL GROUPS IN BUSINESS ADMINISTRATION

## Freshman Year

<table>
<thead>
<tr>
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<th>Merchandising</th>
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## Sophomore Year

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<th>TITLE OF COURSE</th>
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<th>Merchandising</th>
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## Junior Year

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## Senior Year

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Note: Inasmuch as some of the above courses are taught only every other year, the student is not required to take the courses in the year indicated. However, the general outline should be followed whenever possible.

*Urgently recommended.
For capable, mature persons whose education has been interrupted by the war and who want maximum professional training in a minimum of time, two two-year courses in addition to the one in Secretarial Science have been organized in the School of Commerce. These courses minimize liberal course offerings and concentrate upon vocational and professional courses. One gives training in the field of merchandising and the other in the field of accounting. Only those students who know definitely that they will not seek a degree should pursue these courses and then only after consultation with the head of the department.

ACCOUNTING

1, 2, 3. Introductory Accounting. The purpose of this course is to present the basic principles of accounting in the form of lectures, questions, problems and practice sets which require application of the theory advanced. Principles and techniques learned here will be useful as a basis for further study of accounting and as an aid in the understanding of the more common problems of business. Technique will be emphasized. Special subjects considered will include payroll accounting, voucher system, elementary cost accounting, consignments, retail method of inventory. Five credits each quarter. B.A. 1. Fall, M. W. F. 8; Lab. T. Th. 2-5; B.A. 2, Winter, M. W. F. 11; Lab. T. Th. 2-5; B.A. 3, Spring, M. W. F. 8; Lab. T. Th. 2-5.

29. Introduction to Governmental Accounting. A study of basic principles underlying the treatment of public and governmental accounts. Typical matters to be discussed are: funds, the budget, revenues and appropriations, trust funds, property accounts, and financial reports for governments. Three credits.

Burrough's Calculator. (See Secretarial Science 94.)

Commercial and Bank Posting. (See Secretarial Science 98.)

Mathematics for Business and Accounting Students. (See Math. 30.)

100. Accounting for Non-Commercial Students. A brief course in Accounting necessary to meet the needs of students in the School of Engineering, School of Agriculture, School of Home Economics, and other non-Commercial students. Three credits. Winter, M. W. F. 8.

101. Problems in Accounting Principles. This is a course in fundamentals and brings to the classroom some of the vividness of the real problems as they arise in business. A critical understanding of accounting as it serves the executive is the aim of the course. Required of all majors in Business Administration and Accounting. Graduate credit may be allowed upon the completion of some additional work. Three credits. Fall, M. W. F. 10.

102, 103. Advanced Accounting. This is intended as a follow-up course for students who have had the equivalent of a year or more of collegiate accounting. It is aimed to serve: (1) those who aspire to a career in accounting; (2) those who intend to become teachers of accounting; and (3) those in practice who may wish to "brush up." This course will deal with such major problems as statements from single entry books, accounting for property and plant, analysis of statements and statement of application of funds, corporation and partnership accounts, trust accounts, accounts for receivables, and actuarial science. Two quarters. Three credits each quarter. Winter, Spring, M. W. F. 10.

105. Practical Accounting Problems. Problems presented will be drawn from examinations of American Institute of Accountants and State Boards. Course is required of all students majoring in accounting. Five credits. Spring.


120, 121, 122. Auditing, Theory and Practice. A study of auditing principles and techniques. Opportunity will be given to engage in a limited amount of actual audit practice. Three credits each quarter. Fall, Winter and Spring, M. W. F. 11.
123. Auditing. Investigations for financing. A practical course in the application of auditing where securities are to be sold to the public or to private investors. The student must have completed the equivalent of B.A. 120, 121. Four credits. Peterson

124. Accounting Seminar. Two credits. Peterson

125. Accounting Research. Time and credit arranged. Staff

127. Income Tax Accounting. A study will be made of the important provisions of the Federal and State Income Tax Laws. Practical problems in Income Tax Accounting will be considered. Three credits. Gardner

 BUSINESS ADMINISTRATION

Lettering and Commercial Art. (See Art 110.)

25. Introductory Business Administration. An introductory course in the fundamentals of business administration. It is intended that this course shall furnish the student with a background for the study of the more complex problems of business. Not open to freshmen. Lectures and reports. Five credits. Fall, Daily 11. Staff

28. Business Finance. This course treats of the structure of the corporate enterprise; providing for a new company; expansion of existing companies; recapitalization and reorganization of the corporation. Financial and operating ratios will be discussed. Proper financial plans and methods of marketing securities will also be considered. Open to qualified sophomores. Prerequisites: Econ. 51, 52, or equivalent, B. A. 1, 3. Five credits. Spring, Daily 9. Gardner

Business Communications. (See Secretarial Science 30.)

Commercial Art and Posters. (See Art 31.)

Color. (See Art 32.)

Psychology of Business and Industry. (See Psychology 54.)

55. Introduction to Personnel Administration. A critical analysis of the problems of labor management which confront the manager of a business enterprise and of policies and methods of dealing effectively with these problems. Four credits. Spring, M. T. W. Th. 2. Staff

Mathematics of Investment. (See Math. 60.) Urged for all accounting and business administration majors.

Indexing and Filing. (See Secretarial Science 65.)

Elementary Statistical Methods. (See Math. 110 or 111.) Required of all accounting and business administration majors.

130. Problems in Investment. With concrete cases used as a basis of discussion, the varying investment needs of different classes of people will be studied in the first part of the course. In the second part, attention will be given to different types of investment houses; while in the third, types of investment securities will be analyzed. Five credits. Fall, Daily 11. Gardner

Business Statistics. (See Economics 131.)

133. Industrial Management Problems. Selected cases will be taken up for study and report. Problems in industrial location; on choice of site; on buildings and layouts; on selection, purchase, and arrangement of equipment; on purchasing and stores; on organization; on industrial research; on labor relations and on problems in managerial control. Prerequisite, B.A. 25. Three credits.

134. Interpretation of Financial Statements. This course aims to give experience in the use of accounting data for evaluating management, and determining the conditions of enterprises in which one may become interested. The course will cover: (1) the interpretation of balance sheets; of operating statements, and the changes between successive statements; (2) the validity of the accounting principles according to which the available information was compiled; (3) the adequacy of the information furnished as a basis for proper judgment of the enterprise; and (4) the financial and managerial significance of the data of special interest to investors, public and private accountants, credit men and teachers. Five credits. Winter, Daily 9. Gardner
135. Budgets. A study in the development and application of a system of budgetary control in American industry. Required of all Business Administration and Accounting majors. Five credits. Spring, Daily 11. Staff

136. Business and Professional Ethics. After a general survey of the science of ethics, special consideration will be given to those principles of professional conduct which are rapidly being introduced into modern business. The work of trade associations and professional organizations will be critically analyzed. Two credits. Wanlass

Risk and Risk Bearing. (See Economics 139.)

140. Insurance. Studied primarily from the standpoint of the consumer of insurance services. Among the topics treated are: types of life and property insurance contracts, nature and uses of life and property insurance, life insurance as an investment, and the organization, management and government supervision over insurance companies. Attention will also be given to the findings of the Temporary National Economic Committee in its study of the life insurance industry. Three credits. Staff

141. Real Estate. This course is designed for those who will be considering the purchase of real estate and of securities based upon real estate, and as an introduction to the general field of real estate contracts, forms, and principles. Recent Federal housing legislation will be analyzed. Three credits. Staff

149. Business Policy. This is a co-ordinating course aimed to develop perspective and judgment and facility in solving business problems. Problems will be discussed in production, distribution, personnel, finance, control, legal and ethical aspects of business. Required of all majors in Business Administration. Five credits. Staff

Office Management. (See Secretarial Science 175.)

190. Seminar in Business Education. (See Secretarial Science 190.)

191. Business Administration Seminar. Special reports and group discussion on current developments in business will be made. Open only to qualified juniors and seniors. Two credits. Staff

MERCHANDISING

62a. Principles of Marketing. (See Ag. Econ. 62.)

63. Salesmanship. The history, development and opportunities in sales work will be covered. The necessity and methods of securing proper preparation for sales work in order to meet the problems encountered in both direct selling and retail selling will be analyzed. The principles of preparing for interviews, proper presentation, gaining favorable attention, arousing the desire to buy, meeting objections, and creating acceptance will be studied. For those who desire, special projects can be carried out in relation to a particular field or type of selling. Lectures and assigned cases. Three credits. Staff

151, 152, 153. Problems in Merchandising. The aim of this course is to present by means of carefully selected cases the manager's merchandising problems. Methods of marketing merchandise; selection of channels of distribution for consumer and industrial goods; sales organization and control, advertising and sales promotion; stock-turn, price policies. Three credits each quarter. Fall, Winter and Spring, T. Th. 10; M. 1. Gardner

154. Purchasing. This course involves a study of the significance of purchasing as a major activity in modern business. Consideration is given to organization, policies and control of the procurement function. Lectures and problems. Four credits. Fall, M. T. W. Th. 2. Staff

155. Retail Buying and Merchandise Control. A study will be made of the merchandising division as applied to the retail field. Particular attention will be given to the department and specialty store fields. The duties of the buyer will be covered in relation to his function as a department manager. Fashion merchandising will be studied to give the student an introduction
to interpreting consumer demand as it conditions the buying policies of a
particular store. The importance of balanced assortments, price policies, con-
trol methods will be studied as an aid to the buyer in controlling stock, mark-
downs and slow moving merchandise as well as meeting seasonal demands.
Selected Reading, assigned cases and reports. Four credits.

156. Principles of Advertising. This course is intended to give a viewpoint
to those who as business executives will direct publicity programs. The course
includes study of the structure of advertisements, the appeals used in the
preparation of advertisements for different products, the choice of media and
work of advertising departments and agencies. Five credits. Winter, Daily 8.

157. Problems in Advertising. The aim of the course is to lead the student
to judge the possibilities of advertising as a sales tool for any type of product
or size of firm and to formulate effective plans of sales strategy cooperatively
with other sales promotional agencies. Actual cases will be studied and ana-
lized. Three credits.

158. Retail Advertising and Sales Promotion. A study is made of: The
functions of advertising in retail distribution; Planning the total advertising
allowance; Breakdown of the publicity budget by seasons, by departments and
by media; Publicity for different types of promotions; Distribution of publicity
expense; Coordination of departmental plans; Control of the advertising bud-
get; Open-to-spend report. Three credits.

160. Sales Management. This course aims to give a broad view of the
important phases of sales administration, planning and execution as applied
to manufacturing and wholesale concerns. It deals specifically with the struc-
ture and functioning of the sales organization and the correlation of its ac-
tivities with those of the production and other departments of the business
enterprise. Specific attention is given to such topics as: marketing policies,
sales planning, sales branches, selection and training of sales force, control of
sales operations, sales budgets, volume, margins and profits. Three credits.
Winter, M. 2, T. Th. 9.

161, 162, 163. Problems in Retail Distribution. This course is designed
to meet the needs of students who wish to gain an understanding of the market-
ing field from the viewpoint of the retail distributor. The problems given
major attention are: accounting and statistics, types of retail institutions,
store location, store layout and merchandise classification, sales policies, ser-
vice policies, merchandising, pricing, brand policies, relation with merchandis-
ing sources, and organization and administrative policies. The case method.
Three credits each quarter. Fall, Winter, Spring, M. W. F. 9.

164. Credit Administration. A study is made of the nature and functions of
credit; forms of credit instruments; sources of credit information, organization
and management of credit operating functions; technical and legal aspects of
collections; credit and collection control. Four credits. Winter, M. T. W. Th.
2.

Economics

W. L. WANLASS, V. D. GARDNER, Professors; E. B. MURRAY, H. H. CUTLER,
Associate Professors; L. MARK NEUBERGER,* Assistant Professors.

See pages 43 and 44 for courses that may satisfy group requirements.

Students majoring in this Department should include the following senior
college courses in either the major or related work. Economics 106, 107a-b
125, 131, 135, 140, 147, 155, 165, 166, 171, 174, 180, 181, 182, and 211; Agri-
cultural Economics 113a; Business Administration 101 and 102; Political

27. Economic Development of the United States. A survey of the historical
development of economic factors. Particular attention will be given to the rise
of the American labor movement, the development of the monetary and banking
system, the evolution of commerce and communication, and the course of Amer-
ican industrial development from the small one-man business of early times
to the super corporations of today. Three credits. Fall, M. W. F. 11.

51. General Economics. This course is for the general college student regardless of his field of specialization. The emphasis is on an understanding of the principles and institutions that underlie the operations of the economic system. Five credits. Fall, Winter and Spring, Daily 9 and 11. 


106. History of Economic Doctrines. A critical study of the origin and the development of the economic theories of the leading thinkers in the leading nations of the world from 1750 to the present time. Three credits. Fall, M. W. F. 10.

107a, b. Advanced Economic Theory. A critical analysis of present day economic theories of value, distribution, and related subjects. This course must be taken by all students majoring in the departments of Business Administration, Agricultural Economics, and Economics. Prerequisites, Econ. 51, 52, or Ag. Econ. 53A, 53B. Three credits each quarter. Winter and Spring, M. W. F. 10.

125. Labor Economics. The emphasis in this course is on the theory and practice of collective bargaining. Special attention is given to recent legislation that has promoted the growth of organized labor. Current issues in industrial relations are critically analyzed. Three credits. Fall, M. W. F. 8. 

131. Business Statistics. Application of statistical methods to problems of business with attention to graphs, analysis of time series, interpretation of index numbers and the statistics of particular industries and business in general. Prerequisites: Math. 111; Econ. 51 and 52. This course may be used for a major in Bus. Adm. Five credits. Fall, Daily 8. 

135. Transportation Economics. Emphasis is placed on railroad transportation in the United States. Some attention will be given to highway and airway transportation. The underlying economic principles will receive more attention than the practical phases of transportation. Special attention will be given to those problems that are peculiar to the intermountain section. Prerequisites, Econ. 51, 52. Three credits. Winter, T. Th. 8. One hour arranged. 

139. Risk and Risk Bearing. A study of the risks of economic life. Hedging, the short sale, futures and spot transactions and the produce and stock exchanges will be studied as well as the institution of insurance. Methods of shifting, reducing and assuming risks will be studied. Prerequisites, Econ. 51, 52. Three credits. Spring, M. W. F. 9. 

140. International Economic Relations. Special attention will be given to the basic economic relationships existing between the industrial nations of the world, international commerce, tariffs, and trade restrictions, international debt and finance, and various means of promoting progress on a basis of sound economics. Prerequisites, Econ. 51, 52. Two credits. Fall, T. Th. 10. 

141. Postwar Economic Problems. This special course is offered to provide students an opportunity to consider the problems that will confront this country and the world when the war is over. Attention will be given to such matters as demobilization, employment, resumption of peace-time production, public-work programs, price controls, and the revival of international trade. Open to all upper division students. No prerequisites. Two credits. 

145. Economics of Consumption. There is an economics of consumption that is quite as important as the economics of production. This course deals on leave.
with personal and group expenditures, standards of living, budgets, variations in consumption, etc. Two credits. Winter, T. Th. 10.

147. Social Security. This course will survey the main divisions of social security legislation; these divisions are workmen’s compensation, legal minimum wage, regulation of hours, unemployment compensation, old age insurance, family wage systems, and health insurance. Prerequisites, one course in Economics and one in Political Science. Three credits. Winter, M. W. F. 8.

Murray

150. Types of Economic Organization. A study of the various forms of economic organization that have been proposed, including some of the Utopias, Marxian socialism, Fascism, National Socialism, the Single Tax, Consumer’s Cooperatives, Syndicalism, Guild-Socialism, Communism, and Capitalism. Three credits. Spring, M. W. F. 8.

Murray


Wanlass

165. Money, Credit and Prices. The structure and operations of money and financial institutions. Special attention given to bimetallism, the gold standard, the money market and the relation of money and credit to prices. Prerequisites, Econ. 51, 52. Three credits. Fall, M. W. F. 9

Wanlass

166. Banking. The functions and operation of such financial institutions as commercial banks, savings banks, and trust companies will be studied critically. This will be followed by an historical treatment of banking in the United States and a survey of European and Canadian banking in comparison with the Federal Reserve System. Prerequisites, Econ. 51, 52, and 165. Three credits. Winter, M. W. F. 9.

Wanlass

171. Business Cycles. A study in the economics of cyclical fluctuations. A critical examination is made of the more significant theories which have been offered in explanation of the cycle. Problems of prediction and control are examined. The history of business cycles is studied. Prerequisites, Econ. 51, 52. Three credits.

Staff


Staff

180, 181, 182. Current Economic Problems. (Economics Seminar.) A reading and research course designed for junior, senior and graduate students who are majoring in economics and related subjects. Special reports on current problems and literature will be made. Required of students graduating in economics. Open only to seniors and graduates. One credit each quarter. Fall, Winter, and Spring, Th. 11.

Wanlass

200. Research in Economics. Special investigations in problems in economics may be carried on by senior and graduate students. Credit will be granted according to work done. Any quarter. Time arranged.

Wanlass

205. Graduate Seminar in Monetary and Banking Theory. The relation of monetary and banking theories to the problems posed by current world difficulties will be examined in some detail. Open to graduate students and seniors with adequate preparation. Two credits. Time arranged.

Murray

206. Graduate Seminar in Fiscal and Tax Problems. The problems of depression and emergency financing will be considered and attention will be focused upon the particular problems which arise out of the war-defense effort. Two credits. Time arranged.

Wanlass
207. Graduate Seminar on Monopoly and Combination. The relation between our historical individualistic society and the need for efficient production are to be analyzed. Interlocking world cartels and their significance will also be considered. Two credits.  

209. Graduate Seminar. A course designed to acquaint students with methods of research in the field of economics. A survey of the literature of economic research and practice in the carrying forward of research projects. Prerequisite, permission of instructor. Two credits.  

211. Graduate Seminar, Same as Economics 209, except that emphasis will be placed upon a study of bibliographical materials in the field of economics and a study of economic literature. Prerequisite, permission of instructor. Two credits.

Political Science

MILTON R. MERRILL, F. D. DAINES, ASA BULLEN, Professors; Asa Bullen, Instructor.

See pages 43 and 44 for courses that may satisfy group requirements.

Students majoring in this department should include the following Senior College courses either in the major or special group. Political Science 101 or 102; 117 or 145; 118 or 124; 127a, b, 129, 180, 181, 182; Sociology 140, and nine hours each in History and Economics. Lower Division students should register also for Psychology 3 and Political Science 10.

1. Government and the Individual. This course introduces the student into the political world of American democracy. Attention is given to an examination of totalitarian governments and the philosophies of fascism and communism which form the theoretical bases of these regimes. Democracy as practiced in the United States and Great Britain is contrasted with these systems. Five credits. Winter, Daily 8.

10a, b. American Government. 10a is a course in which major attention is given to the national government. It is desirable but not required that it be taken before taking upper-division courses in Political Science. 10b is a course in which the emphasis is on state, municipal and county or rural governments. The course logically follows Political Science 10a. Five credits each quarter. 10a, Fall, Daily 9; Winter, Daily 9; Spring, Daily 11. 10b, Spring, Daily 9.

11, 12, 13. Commercial Law. Political Science 11 is a general survey course and is intended as a course of general information to students outside the School of Commerce as well as an introductory course to students who take any additional Commercial Law courses. Political Science 12 and 13 are devoted to comprehensive study of the law of contracts and agency. Open to all students of sophomore standing or above. Three credits each quarter. Fall, Winter, and Spring. M. W. F. 8.

70. Comparative Government. A comparative study of the various forms and kinds of governments that have developed in the modern world, with an analysis of the forces in the United States which might lead toward a fascist or a communist order of society. Three credits. Spring, M. W. F. 9.

75. Latin American Governments. All the Latin American governments will be discussed in this course. Attention will also be given to political and economic relations of the United States with the Latin American states. Three credits. Spring, M. W. F. 8.

101. American Foreign Policy. The place of the United States in the family of nations as affected by our traditions, interests, and interpretations of international affairs. Three credits. Spring, M. W. F. 11.

102. International Political Relations. Psychological, economic, racial, and other obstacles to international cooperation, as exemplified in recent events. The Treaty of Versailles; international law; the League of Nations; and present day world politics including the present proposals for world cooperation and government are discussed. Three credits. Winter, M. W. F. 11.
103. Principles and Problems of Government. A general survey of public affairs and governmental action in the modern world. Designed primarily for upper division students majoring outside the field of the social sciences but who desire some competence in the analysis of modern politics. Three credits. Fall, M. W. F. 11. Merrill

104, 105, 106, 107, 108. Commercial Law. Political Science 104 is a study of the law of negotiable instruments, while 105 and 106 include the study of the law of bailments, sales of personal property, partnerships, corporations, and bankruptcy. Political Science 107 and 108 include the study of the law of real property, including estates, deeds, conveyancing, abstracts of title, mortgages, wills. Political Science 105 and 106 alternate with Political Science 107 and 108. Political Science 105 and 106 will be given in 1945-46. Prerequisite, Political Science 11, 12, 13. Three credits each quarter. Fall, Winter, and Spring, T. Th. 8, M. 12. Merrill

104a. Commercial Law 104a. A course in the law of negotiable instruments. Three credits. Fall, Winter, Spring, T. Th. 10. Merrill

104b. Commercial Law 104b. A course in the law of bailments, sales of personal property, partnerships, corporations, and bankruptcy. Three credits. Fall, Winter, Spring, T. Th. 10. Merrill

105. Commercial Law 105. A course in the law of sales of personal property. Three credits. Fall, Winter, Spring, T. Th. 10. Merrill

106. Commercial Law 106. A course in the law of bailments and partnerships. Three credits. Fall, Winter, Spring, T. Th. 10. Merrill


110. Political Problems of the Post-War World. This course examines the various proposals for a world organization to be formed at the close of World War II, contingent on the course and outcome of the war, together with an analysis of the various philosophies and systems of governments that conceivably might arise as a result of vast changes now evident in the world. Three credits. Winter, M. W. F. 10. Bullen

117a. Constitutional Law. A general two-quarter course in American Constitutional Law with the case method being used extensively. The student may take 127b without 127a with the consent of the instructor. Prerequisite, Political Science 10. Three credits each quarter. Fall and Winter, M. W. F. 8. Daines

117b. Constitutional Law. A general two-quarter course in American Constitutional Law with the case method being used extensively. The student may take 127b without 127a with the consent of the instructor. Prerequisite, Political Science 10. Three credits each quarter. Fall and Winter, M. W. F. 8. Daines

124. Public Opinion and Political Parties. This is a five-hour upper division course which combines the study of political parties and public opinion. Prerequisite, one year of social science. Five credits. Fall, Daily 10. Daines

127a. Constitutional Law. A general two-quarter course in American Constitutional Law with the case method being used extensively. The student may take 127b without 127a with the consent of the instructor. Prerequisite, Political Science 10. Three credits each quarter. Fall and Winter, M. W. F. 8. Daines

127b. Constitutional Law. A general two-quarter course in American Constitutional Law with the case method being used extensively. The student may take 127b without 127a with the consent of the instructor. Prerequisite, Political Science 10. Three credits each quarter. Fall and Winter, M. W. F. 8. Daines

129. Public Administration. An introduction to the study of public administration and administrative law for those contemplating public service careers. The role and techniques of management in public enterprise, the organization, legal bases, planning, staffing, personnel, finance, and public relations of modern government. Five credits. Spring, Daily 10. Daines

140. American Legislation. Organization and procedure of legislative bodies. Influences at work in and the character of the output of national and state legislatures. The laboratory method of approach is used as far as is feasible. Parliamentary law is emphasized. Three credits. Winter, M. W. F. 11. Daines

145a. History of Political Thought. Political Science 145a covers political theories and ideas from the Greek period to Edmund Burke. Political Science 145b continues the study of political theories from Burke to the present time. Three credits each quarter. Fall and Winter, M. W. F. 9. Daines

180, 181, 182. Current Political Problems. A series designed for upper division students. Required of those graduating in Political Science. Students may take any quarter without the preceding quarter or quarters with the consent of the instructor. Two credits each quarter. Fall, Winter, and Spring, T. Th. 11. Merrill

190. Lectures in Public Administration. This is a lecture course for major students in Political Science and related subjects. Lectures will be delivered by men and women actively engaged in government administration. One credit. Winter, M. 12. Daines

200. Research in Political Science. For senior and graduate students. Time and credit arranged. Daines
Secretarial Science
P. E. Peterson, Professor Emeritus; L. Mark Neuberger,* Ina Doty, Clara P. West, Assistant Professors; Ruth Richards, Instructor.

Students majoring in Secretarial Science must complete the following courses in addition to the institutional requirements for graduation. Elementary shorthand and elementary typewriting are not required of students who have had the equivalent.

Curriculum in Secretarial Science for B. S. Degree

<table>
<thead>
<tr>
<th>Dept.</th>
<th>No.</th>
<th>Title of Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sec.</td>
<td>Sci.</td>
<td>30</td>
<td>Business Communications</td>
</tr>
<tr>
<td>Sec.</td>
<td>Sci.</td>
<td>65</td>
<td>Indexing and Filing</td>
</tr>
<tr>
<td>Sec.</td>
<td>Sci.</td>
<td>75, 76, 77</td>
<td>Elementary Shorthand</td>
</tr>
<tr>
<td>Sec.</td>
<td>Sci.</td>
<td>80, 81, 82</td>
<td>Intermediate Shorthand</td>
</tr>
<tr>
<td>Sec.</td>
<td>Sci.</td>
<td>69, 70, 71</td>
<td>Transcription Practice</td>
</tr>
<tr>
<td>Sec.</td>
<td>Sci.</td>
<td>86, 87, 88</td>
<td>Elementary Typewriting</td>
</tr>
<tr>
<td>Sec.</td>
<td>Sci.</td>
<td>89, 90, 91</td>
<td>Advanced Business Typewriting</td>
</tr>
<tr>
<td>Sec.</td>
<td>Sci.</td>
<td>94</td>
<td>Burroughs Calculator</td>
</tr>
<tr>
<td>Sec.</td>
<td>Sci.</td>
<td>98</td>
<td>Commercial and Bank Posting</td>
</tr>
<tr>
<td>Math.</td>
<td></td>
<td>30</td>
<td>Mathematics 30</td>
</tr>
<tr>
<td>B. A.</td>
<td>1, 2</td>
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<td>Introductory Accounting</td>
</tr>
<tr>
<td>B. A.</td>
<td>25</td>
<td></td>
<td>Introductory Business Administration</td>
</tr>
<tr>
<td>English</td>
<td>2</td>
<td></td>
<td>Mechanics of Writing</td>
</tr>
<tr>
<td>English</td>
<td>5</td>
<td></td>
<td>Scientific Vocabulary (or Foreign Language)</td>
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<tr>
<td>Econ.</td>
<td>51</td>
<td></td>
<td>General Economics</td>
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<tr>
<td>Econ.</td>
<td>52</td>
<td></td>
<td>Economic Problems</td>
</tr>
<tr>
<td>Sec. Sci.</td>
<td>175</td>
<td>Office Management</td>
<td>3</td>
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<tr>
<td>Sec. Sci.</td>
<td>183, 184, 185</td>
<td>Advanced Speed Shorthand</td>
<td>9</td>
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<tr>
<td>Sec. Sci.</td>
<td>186, 187</td>
<td>Secretarial Science</td>
<td>6</td>
</tr>
<tr>
<td>Sec. Sci.</td>
<td>179</td>
<td>Methods of Teaching Typewriting</td>
<td>3</td>
</tr>
<tr>
<td>Sec. Sci.</td>
<td>180</td>
<td>Methods of Teaching Shorthand</td>
<td>3</td>
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<tr>
<td>B. A.</td>
<td>101</td>
<td></td>
<td>Problems in Accounting Principles</td>
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<tr>
<td>B. A.</td>
<td>Elective</td>
<td>Business Administration (Senior College)</td>
<td>3</td>
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<tr>
<td>Econ.</td>
<td>Elective</td>
<td>Economics (Senior College)</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
<td>Electives (27 of which must be Senior College)</td>
</tr>
</tbody>
</table>

Students wishing a teaching certificate in Secretarial Science must add the following courses: Psychology 3 and 102a and b, Education 111, 113, 127, 129a, 129b, 114, 116, 145, and Physiology 145. See School of Education for additional requirements.

A two-year course is also offered in Secretarial Science for students who do not wish to qualify for a B.S. degree, but who wish to fit themselves for stenographic positions as quickly as possible.

Two-Year Secretarial Course

First Year

<table>
<thead>
<tr>
<th>Fall Courses</th>
<th>Credits</th>
<th>Winter Courses</th>
<th>Credits</th>
<th>Spring Courses</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Biol. Science</td>
<td>5</td>
<td>Accounting 1</td>
<td>5</td>
<td>Accounting 2</td>
<td>5</td>
</tr>
<tr>
<td>Mechanics of Writing</td>
<td>3</td>
<td>Calculator 94</td>
<td>2</td>
<td>Bus. Communications</td>
<td>3</td>
</tr>
<tr>
<td>El. Shorthand</td>
<td>3</td>
<td>El. Shorthand</td>
<td>3</td>
<td>Bank posting 98</td>
<td>2</td>
</tr>
<tr>
<td>Typewriting</td>
<td>1</td>
<td>Typewriting</td>
<td>1</td>
<td>El. Shorthand</td>
<td>3</td>
</tr>
<tr>
<td>P. E. or M. S.</td>
<td>1</td>
<td>El. Psychology</td>
<td>5</td>
<td>Typewriting</td>
<td>1</td>
</tr>
<tr>
<td>Mathematics 30</td>
<td>3</td>
<td>P. E. or M. S.</td>
<td>1</td>
<td>P. E. or M. S.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
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</table>

*On leave.
†These courses count toward filling the group requirements.
‡Required for a teaching certificate.
### Second Year

#### Fall

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Int. Shorthand</td>
<td>3</td>
</tr>
<tr>
<td>Transcription Prac.</td>
<td>1</td>
</tr>
<tr>
<td>Adv. Typewriting</td>
<td>1</td>
</tr>
<tr>
<td>Bus. Administr'n</td>
<td>5</td>
</tr>
<tr>
<td>Indexing and Filing</td>
<td>3</td>
</tr>
<tr>
<td>Pol. Science 11</td>
<td>3</td>
</tr>
<tr>
<td>P. E. or M. S.</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>

#### Winter

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Int. Shorthand</td>
<td>3</td>
</tr>
<tr>
<td>Transcription Prac.</td>
<td>1</td>
</tr>
<tr>
<td>Adv. Typewriting</td>
<td>1</td>
</tr>
<tr>
<td>Economics 51</td>
<td>5</td>
</tr>
<tr>
<td>Pol. Science 12</td>
<td>3</td>
</tr>
<tr>
<td>P. E. or M. S.</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

#### Spring

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Sophomore Comp.</td>
<td>5</td>
</tr>
<tr>
<td>Int. Shorthand</td>
<td>3</td>
</tr>
<tr>
<td>Transcription Prac.</td>
<td>1</td>
</tr>
<tr>
<td>Adv. Typewriting</td>
<td>1</td>
</tr>
<tr>
<td>Economics 52</td>
<td>5</td>
</tr>
<tr>
<td>P. E. or M. S.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>


65. **Indexing and Filing.** Drill and practice will be given in alphabetic, numeric, triple check automatic, subject, decimal, geographic, and soundex methods of filing. The indexing, coding, and filing of letters, cards, blueprints, catalogs, and other business forms will be emphasized. Fall, M. W. F. 9. Winter, M. W. F. 10. Spring, M. W. F. 10. *Richards*

*69. Transcription Practice.** Designed to develop skill and speed in the transcription of letters from shorthand notes. Students must be able to take dictation at not less than 60 words a minute and type at least 40 words a minute. One credit. Fall, T. Th. 12. Winter, M. W. 12. *Doty*

*70. Transcription Practice.** Continuation of 69. One credit. Winter, T. Th. 12. Spring, M. W. 12. *Doty*

*71. Transcription Practice.** Continuation of 70. One credit. Spring, T. Th. 12. *West*

75. **First Quarter Shorthand.** Designed for students who have had no previous training in shorthand, and includes a study of the fundamentals of shorthand by the functional method. Emphasis will be placed on developing fluency in reading and writing from shorthand plates. Three credits. Fall, Daily 10. Winter, Daily 11. *Doty*

76. **Second Quarter Shorthand.** Continuation of course 75. Emphasis will be placed on the writing of shorthand. Three credits. Winter, Daily 10. Spring, Daily 11. *Doty*

77. **Third Quarter Shorthand.** Continuation of course 76. Practice will be given in new-matter dictation. Three credits. Fall, Daily 11. Spring, Daily 10. *Doty*

80. **Intermediate Shorthand.** Designed for students who have had one year of shorthand and who are able to take dictation at 60 words a minute. It includes a review of the theory of Gregg shorthand and the development of new vocabulary and phrase writing. Students must be able to type at least 40 words a minute and must register for Transcription Practice 69. Three credits. Fall, M. W. F. 10. Winter, M. W. F. 2. *Doty*

81. **Intermediate Shorthand.** Continuation of 80. Must be accompanied by Transcription Practice 70. Three credits. Winter, M. W. F. 10. Spring, M. W. F. 2. *Doty*

82. **Intermediate Shorthand.** Continuation of 81. Must be accompanied by Transcription Practice 71. Three credits. Spring, M. W. F. 10. *Doty*

*Required of all who register for Intermediate Shorthand 80, 81, 82.*
86. First Quarter Typewriting. For students who have had no previous training in typewriting. This course is designed to develop a thorough knowledge of the keyboard and to give practice in the use of the mechanical features of the typewriter. Special attention will be given to the development of typewriting for personal use. One credit. Fall, T. Th. 8, W. 12. Winter, T. Th. 2, F. 8. Spring, T. Th. 8, M. 1. Richards

87. Second Quarter Typewriting. Continuation of 86. Attention will be given to sentence and paragraph practice and to letter writing. One credit. Fall, T. Th. 2, W. 1. Winter, T. Th. 8, M. 1. Spring, T. Th. 2, F. 12. Richards

88. Third Quarter Typewriting. Continues with the advanced development of the features given in 86 and 87, and in addition includes tabulating. One credit. Winter, T. Th. 9. Spring, T. Th. 9. Richards

89, 90, 91. Advanced Business Typewriting. This course is designed for students who have had one year of typewriting. Fall Quarter: Special attention will be given to advanced letter writing, telegrams, invoices and billing, and advanced tabulation. Winter Quarter: Advanced legal forms and manuscripts. Spring Quarter: Rough drafts, advanced secretarial problems, and the care of the machines. One credit each quarter. Fall, Winter and Spring, T. Th. 11. Richards

94. Burroughs Calculator. Practice in addition, multiplication, subtraction, and division on the Burroughs calculating machine and the application of the machine to various business computations such as percentages, discounts, prorating, decimal equivalents, and constants. Two credits. Fall, Winter, or Spring, M. 2-4, W. 2. Doty

98. Commercial and Bank Posting. Practice in the application of the Burroughs posting machine to bookkeeping procedure in commercial and financial institutions and banks. Two credits. Fall, Winter or Spring, M. or T. 3-5. Doty and Richards

175. Office Management. Emphasis will be placed on principles of office management, duties and responsibilities of the office manager; types of organization; methods of control; office arrangement and equipment; job analyses; selection, employment, and training of employees. Prerequisites, introductory accounting and general economics. Three credits. Fall, T. Th. 10, W. 12. Doty

*179. Methods of Teaching Typewriting. A study of recent developments and practices in the teaching of typewriting for those preparing to teach typewriting and for those engaged in teaching who wish to render their teaching more effective. Three credits.

*180. The Teaching of Shorthand. A study of the newer methods and trends in the teaching of shorthand, and observation and practice in the teaching of shorthand classes for those preparing to teach shorthand. Three credits. Fall, M. W. F. 8. (Consult instructor before registering.) West

183, 184, 185. Advanced Speed Course in Shorthand. This course is designed for students who have had at least two years of shorthand and are able to take dictation at not less than 100 words a minute. Special emphasis will be placed on increasing shorthand speed through speed phrases and reporting shortcuts. Practice will also be given in advanced transcription. Three credits each quarter. Fall, Winter, and Spring, M. W. F. 11. West

186, 187. Secretarial Science. This course is designed to acquaint students with office routines and practices and to give them practice in the quantity production of transcripts and business papers. Attention will be given to office conduct and attitudes, personal qualities of a secretary, and the procuring of a position. Prerequisites: Two years of shorthand and typewriting, general economics, introductory accounting, and business communications. Three credits each quarter. Winter and Spring, M. W. F. 8. West

190. Seminar in Business Education. Special reports on current business education problems and literature will be made. One credit.

*Either (but not both) of these courses may be used as an elective course in Education.
Sociology

JOSEPH A. GEDDES, W. B. PRESTON, Professors; JOSEPH N. SYMONS, Associate Professor; EVELYN HODGES, Assistant Professor; REX SKIDMORE,* Instructor.

Departmental Objectives:

1. To perform an integrative function. Scientific information on social living has gradually become segregated into separate disciplines known as the social sciences. Each of these sciences at times, and one of them as a normal responsibility, faces the task of integrating the contributions of the others. Sociology, because of the nature of its subject matter, has come to be looked upon generally as having major integrative responsibility. This responsibility is met by offering such courses as Modern Social Problems, Rural Sociology, Family Inter­vention, Courtship and Marriage.

2. To provide for students who become majors, and as many other future citizens as may be interested, the steadily accumulating, tested, basic information dealing with people and groups in relationship. The most basic of this information is found in the following courses: Principles of Sociology, Social Change, History of Social Thought, The Study of Society, The Crime Problem.

3. To offer to majors and minors and others whose training warrants further information and experience, under supervision, in special fields pertaining to relationship. The special fields thus far selected for development by the Sociology Department have been chosen because of their importance to the people of the state, and particularly to future citizenry. The fields are (1) General Sociology, including research, (2) Family Welfare, (3) Social Change, and Social Disorganization, (4) Rural Welfare, Community Life and Social Institutions.

A dominant purpose in providing the information indicated in 1 and 2 is to enable students to become socialized citizens; to aid them to make more satisfactory progress in personality development and to assist them to achieve balance in attitude, in participation and in philosophy of living.

4. Objectives in the Division of Social Work are practical in nature. The aim is to provide preparation for social service in the senior year and more advanced training in one year of graduate study. Students who take social work during the senior year and then take social-work positions may later continue their studies and secure the social work certificate. The aim includes also pre-professional training on the undergraduate level through which a knowledge of rural conditions is secured. This information includes studies of rural standards of living, rural housing, rural means of communication, rural taxation, agricultural prices, rural institutions, rural trends, etc.

Sociology 70 is prerequisite for all Upper Division courses in Sociology except Sociology 160.

Nuclei courses about which the major and the special group courses should revolve are suggested, as follows:

General Sociology and Research—Sociology 70, 140, 153, 190, 191, 192, 193, 194, 195, 202, 207.

Family Welfare—Sociology 60, 160, 162.

Social Change and Social Disorganization—Sociology 52, 102, 154, 162, 170, 172, 207.


5. Social Change. An orientation course in the field of Sociology for freshmen. Social changes are studied in relation to their results. Adjustment to and management of change are considered. Five credits. Fall, Daily 11.

*On leave.
10. Rural Sociology. This course attempts to provide a groundwork of information which will lead to enlightened rural citizenship and provide a constructive philosophy for living in the country. Concise digests of programs in 25 or more fields are made. Rural social psychology is given emphasis. Conditions in rural Utah are studied. Three credits. Fall, M. W. F. 8. Spring, M. W. F. 9. 

Geddes and Symons

40. Sociology for Nurses. Problems of group and social relationships which influence well-being and aid in regaining health are studied. Three credits. Fall, M. T. Th. 2. Spring, M. T. Th. 2. 

Staff

52. The Crime Problem. This course is concerned with the broader aspects of crime as a serious contemporary problem. Such topics as the extent, nature, causes of, theories concerning, techniques for coping with, programs for prevention, etc., furnish the course content. Three credits. Fall, M. W. F. 9. 

Symons

60. Courtship and Marriage. A study of social and individual problems of mate selection, courtship and marriage with emphasis given to those factors which make for favorable selection. Three credits. Spring, M. W. F. 10. 

Symons

70. Principles of Sociology. The foundations of Sociology are studied in order that a plan of social progress may be formulated. The problems of social origins, social structures, public opinion, social activities, social organization, and social evolution are carefully considered. Prerequisite for all Upper Division classes. Five credits. Fall, Daily 8. Winter, Daily 8, 11. Spring, Daily 8, 11. 

Staff

100. Educational Sociology. This course deals with the influence of the social processes and social changes on school curricula, objectives and teachers. It includes an appraisal of educational goals in the light of our present social needs. Three credits. Fall, T. Th. 11, W. 12. 

Staff

102. Organized Crime. Criminal behavior is becoming more thoroughly organized. The professional offender finds himself after a time in a culture unique to him and his associates. The nature of this culture from early beginnings to the present will be treated. Three credits. Winter, M. W. F. 11. 

Symons

Public Opinion. (See Political Science 124.)

140. Social Psychology. The influence of the "groups" in the formation of the "norms" of life and in exerting pressure on the personality is stressed. Five credits. Fall, Daily 8. 

Geddes

Mental Hygiene. (See Physiology 145.)

153. History of Social Thought. The emergence and development of social thought from early periods is traced to August Compte. From this point important developments in Europe and America are studied. Particular emphasis is given to the American field. Five credits. Spring, Daily 8. 

Symons


Staff

156. Social Institutions. Similarities and differences in the life histories of institutions as they emerge, grow and decline are appraised. Society's efforts to keep institutions attuned to the objectives for which they were organized are observed. Three credits. Spring, M. W. F. 10. 

Staff


Geddes


Staff

170. Juvenile Delinquency. The causes of delinquency are considered with the purpose of arriving at intelligent remedies. Various methods of home, social, and institutional treatment are studied; parental cooperation, personal supervision allied with probation and parole, institutional treatment, etc. Three credits. Winter, M. W. F. 10. 

Symons

172. Poverty and Dependency. A study is made of the extent of poverty, its causes, remedies now in use, and others which give promise. Social methods
of caring for dependents are examined. Emphasis is placed on programs which
look to prevention and to minimization as well as to adequate care. Three
credits. Fall, M. W. F. 8.

190. 191, 192, 193, 194, 195. Seminar in Sociology. One credit each quarter.
Fall, Winter, and Spring. Time arranged. Six quarters required of majors in
Sociology. Staff

201. Research in Sociology. For advanced students only. A project is
organized and field work is carried on under supervision. Original studies are
made. Prerequisite, Soc. 70; Math. 111 recommended. Fall, Winter, Spring.
Time arranged. Staff

Sociology is studied as a classified body of facts and as a method of investiga-
tion. Spring, Daily 9. Geddes

207. Graduate Seminar. In this course, short subjects falling within the
field of Sociology and pertinent to it but not available in regular courses are
selected for study. Winter, M. 2-4. Staff

220. Rural Organization. A study of social organization in small towns,
villages and open country. Required for students training for rural social work.
Two credits. Spring, T. Th. 9. Geddes

Social Work

Division of Social Work.

JOSEPH A. GEDDES, Director

Undergraduate:

Students with a well balanced Social Science background may be admitted
to Social Work training. At the end of the senior year they should be in a
position to take the state merit examination and become social workers.

Graduate:

Students are admitted to the Graduate Division of Social Work: (1) who
are graduates of an accredited college or university; (2) who have a well
balanced background of training in political science, economics, psychology, and
sociology; (3) who have not less than 30 hours in one of the four fields listed
above; (4) who have personal qualifications which give promise of fitting them
for social work practice; and (5) who are under 35 years of age. Students over
35 may be admitted whose work has been in closely related fields and who are
otherwise well fitted for social work.

Students enter the graduate Division after having completed a major in
economics, psychology, political science, or sociology. Students majoring in
child development, physical education, or public health, who have accumulated
25 hours in one of the four social sciences listed above, may also be admitted,
provided they have a fair balance in the social sciences. In addition to the tech-
nical social work courses, some rural welfare backgrounds are necessary. Training
involves one year of graduate work designed to provide practical acquaintance
with the methods, techniques and problems of social work. Supervised
field work under competent direction is given as a part of the regular required
work. A certificate in social work is awarded to those who complete 45 hours in
social work on the graduate level and who have also taken Rural Sociology,
Rural Organization, Marriage and Divorce, and Mental Hygiene.

For detailed information write to the Director for a bulletin of the Grad-
uate Division of Social Work.

173. The Field of Social Work. A survey of the development of the various
fields of social work. This course is designed for students entering the fields
of teaching, home demonstration, county agents' work, as well as social work.
Two credits. Fall, M. W. 11. Hodges

family case work. Investigation, diagnosis and treatment of economic, medical,
and conduct problems are studied. Three credits. Fall, M. W. F. 10 Geddes
Hodges

210. Field Work I. Field work centers will be maintained in selected public and private agencies and supervision will be provided under college direction. S. W. 200 should precede or be taken concurrently. Two or four credits. Fall and Winter, T. Th. 9-5.  
Hodges

211. Field Work II. A continuation of Field Work I. Two or four credits. Winter and Spring, T. Th. 9-5.  
Hodges

212. Field Work III. A continuation of Field Work II. S. W. 200, 201 are prerequisites. Two or four credits. Spring, T. Th. 9-5.  
Hodges

214. Field Work in Group Work. A limited amount of leadership training and observation of groups in action is available to students who have completed Social Work 275. Two credits. Spring. Time arranged.  
Hodges

222. Rural Public Welfare. A study of social work problems and methods as influenced by rural conditions. Two credits. Spring, W. 3-5.  
Staff

230. Social Psychiatry. Emotional and intellectual factors in adjustment problems; diagnosis of mental and nervous disorders; the interrelation of physical, emotional, mental and environmental factors are stressed. Three credits. Fall, W. 11 and 1, F. 11.  
Staff

240. Community Organization. The growth of the community movement is traced. The organization of community forces into organized agencies and the development of communal programs is emphasized. Disorganizing factors are isolated. Three credits. Spring, M. W. F. 8.  
Geddes

Hodges

260. Medical Information. A study of diseases most frequently encountered in social work. The interrelations of disease and social conditions are appraised. Medical resources are considered. Open to social work students in the senior year. Three credits. Fall. Time arranged.  
Preston

Hodges

Hodges

Staff

276. Contemporary Social Work Literature. This course attempts to review the current contributions to the various fields of social work literature as well as to acquaint the student with the character of the periodical literature that has been published during the previous year. Two credits. Winter, M. W. 10.  
Staff

Hodges

290. Methods of Social Research. A study of present methods of carrying on social research. Exploration, the interview, the survey, the diary, the letter, the life history, interpretation of data are stressed. Prerequisite, Sociology 70; Three credits. Spring. Time arranged.  
Geddes

Staff
# Suggested Pre-Professional Courses for Sociology Majors Who Expect to Take Graduate Training in Social Work

## Fall

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SCHOOL OF EDUCATION
E. A. JACOBSEN, Dean

Art .................................................. 135
Education ............................................. 138
   Elementary Education ............................. 138
   Secondary Education .............................. 140
   Vocational Education ............................. 142
   Administration and Supervision .................. 143
   Library Science .................................. 143
   Graduate Work ................................... 144
Music ............................................... 145
Physical Education ................................. 149
Psychology .......................................... 155
The School of Education, as an administrative unit of the College, comprises the departments of Art, Music, Psychology, Physical Education and Education. A major function of these departments is the preparation of teachers for the elementary and secondary schools. Each of the departments, in addition to this function, offers courses contributing to general education and courses designed to supplement the major work of other departments of the College.

The Bachelor of Science degree with a major in Education is designed primarily for those students who are preparing to teach in elementary schools, or for those who desire to meet requirements for administrative or supervisory credentials. Although provision is made for a major in secondary education, students preparing to teach in the secondary schools will usually find it advisable to take their Bachelor's degree in the particular school in which their major work is chosen. Arrangements have been made with the different schools of the College to provide the candidates for their respective degrees with the necessary professional courses to qualify them to teach in these fields. Requirements for a teaching major are set forth by the various departments.

The School of Education stands firmly on the principle that teachers must not only be liberally educated but must be thoroughly prepared in the subjects which they are to teach.

For teachers in junior and senior high schools it is intended that the student shall be prepared to teach in two high school teaching fields. The student's mastery of essential subject matter in the teaching field, rather than the credit hours, should operate in determining subject matter proficiency. Teaching fields should be chosen by the student on basis of his individual abilities and interests and also in the light of available information concerning the demands for beginning teachers and the supply in the respective fields. The curriculum in professional education and psychology aims to impart to prospective teachers the meaning of education in its relation to desirable social objectives, the organization and administration of schools in relation to the needs of the learner and to social aims, an understanding of the nature and needs of the learner and the learning process, and by means of certain technical courses in education, to develop skills in the art of teaching.

The sequence of professional courses in Psychology and Education is such that it is necessary to study in these fields before the final year. A detailed plan of study is not outlined or prescribed. The student who plans to prepare for teaching will usually find it advantageous to devote the first two years to securing a well-balanced general education, giving some attention to courses prerequisite to advanced study. During these years some emphasis may also be placed in the field of specialization. The third and fourth years should be devoted primarily to concentration in the major field of study and to professional subjects in Psychology and Education.

For requirements for admission, certification, and graduation, see pages 39 to 48.

TEACHER PLACEMENT BUREAU
MRS. VERA A. CHRISTENSEN, Secretary.

The College is fundamentally interested in placing qualified teachers in teaching positions. To accomplish this purpose the Teacher Placement Bureau has been organized in connection with the Department of Education. All students who qualify for teaching certificates are expected and urged to register with the Placement Bureau to facilitate the compilation of the proper credentials to be used in placement for the current and future years.

Candidates for teaching positions should join the Placement Bureau in the early part of the winter quarter or not later than the first week of the spring quarter.
TEACHER CERTIFICATION

C. E. McCLELLAN, Chairman Certification Committee

A teacher's certificate is a credential issued by the State. The State Department of Education prescribes the courses required for certification, but the College gives the courses and then certifies to the State when the applicants for certification have completed the requirements.

A copy of the list of courses required may be had from the secretary of the Education Department, Room M277. The requirements are also stated in the opening paragraphs in the division of Elementary and Secondary education in the catalog on pages 138 and 140.

It is highly important to the student desiring to qualify for teaching that he contact the chairman of the Certification Committee during the last quarter of the sophomore year or at the beginning of the junior year for information regarding certification.

Art

CALVIN FLETCHER, Professor; H. R. REYNOLDS, Associate Professor; JESSIE LARSEN, Assistant Professor; EVERETT THORPE, Instructor.

The Art department is primarily a service department correlating with Home Economics, Industrial and Mechanic Arts, Commerce and other major divisions of the College as well as with the various departments of the School of Education. Unless otherwise stated its courses are adapted to students without special talent or interest in the field as well as to the needs of the talented. In addition, however, it is adequately prepared to offer major and minor work as listed below.

Art is recognized as one of the great divisions of the humanities which are so essential to the making of the right kind of leaders in a world of overworked technology. Art 1, 2, 3, 22, 26, 32 and 33 may be used to satisfy the Junior College requirements in the Language and Arts group.

Majors:

Teaching majors in secondary Art must complete Art 1, 2, 31, 32, 133, 122, 124, 125, 126, 127, 151, 110 (four credits), 104 (ten credits), 106 (three credits), 114 (four credits), 112 or 113 (three credits).

Teaching majors for elementary grade supervision or special teaching of drawing, handwork, and creative expression will complete Art 1, 2, 3, 31, 123, 124, 125, 127, 152, 110 (2 cr.), 104a and b (10 cr.), 106 (3 cr.), 114 (3 cr. in at least 4 lines). Art 20 (2 cr.), Art 112 (2 cr.).

Majors may specialize in the following fields on these conditions: They must show aptitude for the work and submit at least 30 hours of credit in the field in addition to Art 1, 2, 3, 31, 133, 126, 127, 124, and 125. Fields open for election are Commercial Art, Fashion Drawing and Illustration, Painting, Sculpture, General Illustration, Interior Decoration, Industrial Design, Hobby Craft Direction, and Occupational Therapy.

Minors:

Education majors in secondary education desiring an art teaching minor should take Art 1, 2, 8, 151, 32 (five credits), 123, 126, 127, 124 and 125.

Textiles majors desiring a teaching minor in Art should take Art 104c, 31, 113 or 114, 122 and 127 or equivalent.

Industrial Arts majors wishing a teaching minor in Art should take Art 32, 113, 114, 151, 127, and 124 or equivalent.

General teaching minors in Art on the secondary level with majors in English, Music, Physical Education, History, etc., should take Art 133, 126, 151, 104a and b (two credits in each), and 106 (two credits).
Majors in Elementary Education who elect Art as a specialization field should take Art 1, 2, 3, 125a, 31, 133, 126, 152, 124, and 104a or b (four credits).

Two-year full time specialization or trade courses in Show Card and Sign Writing, Costume and Commercial Illustration, Painting and Sculpture are also available. Students wishing such courses should consult the head of the department.


Art 2. Design and its Application. Designed to give students opportunity to develop skill in application of design principles to elementary craft problems as used in everyday life. Students study simple constructive and decorative ideas adapted to their individual needs whether for home or school and on the level of their previous experience. Side by side many types of handwork are pursued. Sections are limited to 15 students. Instruction is adapted to the needs of homemakers and teachers of handwork on any level. Prerequisite, Art 1 or equivalent. Three credits. Fall, Sec. 1, Lecture, T. 2; Lab. T. 3-4, Th. 2-5. Room M330-B. Thorpe. Winter, Sec. 2, Lecture, M. 9; Lab. M. W. F. 9 and 10, Room 330-C. Reynolds. Winter, Sec. 3, Lecture, M. 10; Lab. M. W. F. 10 and 11, Room 330-E. Larsen. Winter, Sec. 4, Lecture, T. 2; Lab. T. 3-5, Th. 2-5, Room M330-B. Thorpe. Spring, Sec. 1, Lecture, M. 8; Lab. M. W. F. 8 and 9, Room M330-E. Larsen. Sec. 2, Lecture, T. 2; Lab. M. W. F. 8, Room 330-C. Thorpe.

3. Art Understanding and Appreciation. Designed to give an understanding of the basic principles underlying architecture, landscape gardening, interior decoration, sculpture, painting, the art of the book, pottery and other things met in everyday life today. The aim is to increase enjoyment through the sense of sight. Three credits. Fall, M. W. F. 8, Winter, M. W. F. 8. Spring, M. W. F. 8, Room 330-C. Reynolds.

22 or 122. Home Planning, Construction and Design. House design, planning, garden planning, building construction, heating, lighting, plumbing, etc. How to select the type of house and supervise the construction and equipping of the home. Three credits. Fletcher.

23 or 123. Interior Decoration. Design and color as applied to the furnishing and decoration of a home. Selection and styles in furniture, drapery, rug, and all other problems relating to the creation of interiors of character and beauty will be considered. Five credits. Fall, M. T. W. Th. 1; Lab., F. 24. Spring, M. T. W. F. 10; Lab., Th. 2-5. Room 330-C. Larsen.

26 or 126. History and Appreciation of Architecture. The characteristics of the great styles of building and the development of a taste for good architecture. Adapted to the needs of the homemaker, teacher, artist, or layman. Three credits. Winter, M. W. F. 11, Room 330-C. Reynolds.


33 or 133. History and Appreciation of Painting. Designed for the layman desiring to extend his knowledge of the great painters as well as for the teachers of art and artists. Three credits. Reynolds.

34. Art for Young Children. Designed to meet the needs of child development majors, mothers in the home, kindergarten and first grade teachers. Two credits. Winter, T. Th. 12. Room 330-C. Fletcher.

124. Perspective. The principles of cylindrical, parallel, oblique and modernistic perspective as used in the arts will be covered. Special attention will be given to rendering in pencil and pen and ink. Three credits. Room 330-E. Spring, M. W. F. 9. Fletcher

125. Anatomy and Figure Drawing. The anatomy and construction of the human figure with emphasis on superficial anatomy. Adapted to the needs of fashion artists, sculptors, painters, illustrators, commercial artists, and teachers. Three credits. May be taken without the lab., which is separate. Fletcher

125a. Laboratory in Figure Drawing. Spring, T. Th. 10-1. Two credits. May be taken alone. Room M330-D. Fletcher

127. Advanced Design. Advanced problems in design for crafts, industrial art, and mural decoration. Adapted to the needs of the teacher of applied art, textiles and industrial are on the secondary school level. Three credits. Winter, M. W. F. 12. Room 330-D. Fletcher

129. Photography. Basic course for all who desire to do more efficient and artistic work. Three credits. Fall, Winter, and Spring, T. Th. 2-5. Room 331. Reynolds

130. Photography—Advanced Problems. Prerequisite Art 129. F. W. S. T. Th. 2-5. Room 331. Reynolds

Art 140. Aids in Blackboard Illustration. This course is designed for those who feel the need of increasing their abilities to illustrate their ideas quickly and effectively with chalk or charcoal. It should be of value to teachers of all age levels as well as demonstration agents in Agriculture and Home Economics. Two credits. Spring, M. W. 2-5. Room M330-D. Fletcher

151. Art Education for High School. Methods of teaching art on the secondary school level. How to motivate the work in drawing, painting, design and crafts. Arrangement of the shop, studio, selection of tools, and supplies, are all taken up. Required of all majors and minors in art on this level. Prerequisite, Art 1, 2. Room M330-D. Fletcher

Art 152. Art Methods for Elementary Grades. Methods of teaching drawing, painting, design and handwork in the elementary schools. Creative expression, the integrated art program, how to use it to achieve desirable social outcomes and promote growth in knowledge, skills, proper habits and attitudes. A "must" in preparation of a grade school teacher. Prerequisite, Art 1 and 2 or equivalent amount of Art 104 and 114. Three credits. Winter, M. W. F. 8. Room M330-E. Larsen

Studio Courses

These courses are set up to give opportunity for all students to experience the thrill of creation as well as to give special help to the talented. All work is individual with several lines going side by side according to the special needs of each student. Direction and help is given during regular specified periods. Students will elect to do one to five credits of work in any line. Three hours of work in the studio is required during a week for each unit of credit. Any course may be repeated for further credit but more advanced problems must be pursued. Courses are open to junior college students. For courses receiving graduate credit, see head of department.

Art 20. Puppetry. Designing and making puppets; construction of puppet stage. Credit arranged. Fall and Spring, M. W. 2-5. Reynolds

A sketch class to work out of doors is arranged for Thursday afternoons during the Fall and Spring quarters. All 104 students are eligible for this class. Fall, Th. 2-5. Spring, Th. 2-5.

A special afternoon with animal drawing is arranged for Tuesday afternoons during the Spring quarter. T. 2-5. Open to all 104 or 105 students.

Art 105. Scientific Drawing, Painting. This work is coordinated with various scientific departments: A, Botanical; B, Zoological; C, Geological. Instructors in the science departments concerned may direct the content of the work done if desired. Credit and time arranged. Any quarter.

Art 106. Creative Sculpture. A, carving in stone; B, carving in wood; C, modeling and casting. Credit arranged. Any quarter, M. T. W. Th. 2-5. Room 330-D.


Art 111. Professional Design. A, textile and wallpaper; B, interior decoration; C, furniture and industrial design; D, house design and architectural composition. Prerequisite, Art 1 or equivalent. Any quarter. Time and credit arranged. Room 330-D.


Art 113. Art Metalry. A, copper, aluminum, and silver smithing; B, jewelry, including stone polishing. Credit arranged. Fall and Spring, M. W. 2-5, Reynolds. Winter, M. T. W. Th. 2-5, Room 330-E. Larsen. Limited to metals obtainable during war.

Art 114. Minor Crafts. A, leatherwork; B, basketry; C, polychrome and gesso; D, textile decoration, including block printing, stenciling, batik, etc. Credit arranged. Fall and Spring, M. W. 2-5, Reynolds. Winter, M. T. W. Th. 2-5. Room 330-E. Larsen.

Art 115. Graphic Art. A, etching; B, wood block printing or wood engraving; C, monotype or lithographic drawing; D, silk screen and paper stenciling. Fall, Winter or Spring, M. T. W. 2-5. Credit arranged. Room 330-D.

Education

C. E. McCLELLAN, Professor Emeritus; E. A. JACOBSEN, L. R. HUMPHREYS, ARDEN FRANSDSEN, *JOHN C. CARLISLE, Professors; EDITH BOWEN, VIRGINIA PHILLIPS, ARTHUR LEWIS, LEGRANDE NOBLE Assistant Professors; GEORGE S. BATES, ALVIN HESS, Instructors.

DIVISION OF ELEMENTARY EDUCATION

— Chairman.

General requirements for graduation with the Bachelor of Science degree are listed on page 46. For a major in elementary education the student must complete at least 36 quarter hours of professional work in the fields of education and psychology and in addition a minimum of 30 hours in one field of study or 18 hours in each of two fields in addition to lower division group requirements. A field of study is interpreted in the broad sense, such as Social Science, Natural Science, Fine Arts, and so forth. Psychology, Child Development, or Library Science may be used for these special fields of study. The student is urged to get in touch with the department during his first quarter at the college for help in planning his program in detail.

*On leave of absence.
Additional requirements are made up of courses in three general groups as follows:

1. Courses designed to develop a broad, liberal background. Included in this group the student must complete 10 hours in English, at least 6 of which shall be in English Composition, 10 hours in Social Science, 10 hours in Physical Science, and 10 hours in Biological Science.

2. A second required group of more technical preparatory courses includes English 24, Art 152, Music 130, Physiology 114, Physical Education 182, Speech 107 and Education 145. Either the course in music or art may be waived if the student has an excess of credit in any one other of the above special curriculum areas.

3. The third required group includes the following professional courses in education: Education 103, Psychology 110, Psychology 112, Education 114, and Education 104, 105 and 106, the last three must be taken during the same quarter. Enrollment in these three courses will be permitted only after the student has completed the requirements listed in (1) and (2) above, as well as the courses in principles of elementary education and educational psychology. Equivalent courses may be substituted with specific consent of the major professor.

Additional courses to make up the total of 36 quarter hours in psychology and education may be elected from those listed below, with the approval of the department. Completion of the above requirements will qualify the student for the State of Utah general Elementary Certificate.

Students wishing to prepare for elementary school supervision or administration should consult the department for special guidance in planning their work.

103. Principles of Elementary Education. The course deals with the aims, functions, work and attainable goals of the elementary school as an integral part of the American system of education; its relations with the community and the other schools of the American series. Part of the work of the course will be devoted to observation and analyses of practices and procedures in selected elementary schools within the vicinity of the College. Four credits. Fall or Spring, M. W. F. 9. Two hours of observation weekly. Time arranged.

104. Elementary School Curriculum. This course is designed to familiarize prospective elementary teachers with the content of the elementary curriculum, the objectives and standards to be realized in the grades, and to extend the student's scholarship in the various fields explored by pupils of the elementary school. Three credits. Any quarter. Time arranged.


106. Practice Teaching. This course is for juniors or seniors who have had Educational Psychology and Principles of Education. The apprentice plan is followed which requires an initial period of observation with minor responsibility but with gradual increase of work and responsibility as trainee's ability is demonstrated. Registration for all quarters should be arranged for at the time of fall registration. Ten credits. Any quarter, time arranged. Students who have credit for other courses in practice teaching, or who have successful teaching experience, may register, by special permission of the instructor, for less than ten hours credit.

108. Social Studies in the Public School. A consideration of the social responsibilities and opportunities of children and youth in the present and post-war world. The part that should be played by the school and the teacher in helping boys and girls to meet these problems will be studied. This will deal with both content and methods in social studies for the public schools. Three credits. Fall, M. W. F. 10.

110. Diagnostic and Remedial Teaching. A consideration of the specific objectives of the elementary school and methods of analyzing the extent to which these objectives are reached. Diagnostic and remedial measures with respect to various areas of the curriculum will be studied. Two credits. Spring, T. Th. 9.

114. Organization and Administration of Education. (See Division of Administration.)

165. Rural Education. An overview of the major problems of rural life as they relate to education. The adaptation of general educational objectives to rural conditions, especially as they pertain to Utah. The organization of rural schools, the course of study, and methods in education suited particularly to the rural school problem on both elementary and secondary levels. Two credits. Winter, Th. 4:30-6:30.

201. Background of Modern Education. (See Division of Graduate Work.)

Educational Psychology. (See Psychology 102a.)

Application of Statistics to Education and Psychology. (See Psychology 102b.)

Child Psychology. (See Psychology 110.)

Psychology of the Elementary School Curriculum. (See Psychology 112.)

Clinical Psychology. (See Psychology 108.)

Psychology of Learning. (See Psychology 107.)

DIVISION OF SECONDARY EDUCATION

Chairman.

Students preparing to teach in the secondary schools will usually find it advantageous to major in subject matter other than education and complete professional requirements in the departments of Education and Psychology.

Students may major in secondary education under one of the two following plans: (1) a teaching major of not less than 30 hours approved by the department in which the major is chosen, and a teaching minor of not less than 18 hours; (2) a composite major of 60 hours in three or more closely related fields with not fewer than 18 hours in any one department within the composite major.

In addition to the teaching major and minor the student must complete 36 hours in professional education, including the courses required for the teaching certificate in the secondary schools, and Education 201 or its equivalent. The electives are to be chosen from other courses listed under secondary education.

The courses required for a teaching certificate in the secondary schools of Utah are: Educational Psychology, Guidance and Personnel, Organization and Administration of Secondary Schools in Utah, Interpretation and Articulation of School Programs, Observation and Teaching in Secondary Schools, including Principles and Methods of Teaching, and electives in secondary education sufficient to make the total 30 hours.

The student should complete Psychology 102a and 102b and Education 111 before enrolling for other courses in the department.

Of the 30 hours required for the secondary school teaching certificate, three hours may be chosen by the student from the following courses. The course chosen must be in either the major or minor field of the candidate.
111. Principles of Secondary Education. The study of problems and principles involved in the learning process; relationships between learner, subject matter, and method; objectives, motivation, direction, discipline, evaluation and other fundamental considerations. Prerequisite, Educational Psychology. Three credits. Any quarter, M. W. F. 8.

113. Occupational and Vocational Guidance. (See Division of Vocational Education.)

114. Organization and Administration. (See Division of Administration and Supervision.)

115. Secondary School Curriculum. This course deals with the nature and function of the curriculum. Different viewpoints respecting the curriculum, and examples of new type curricula now attracting attention in various parts of our country, are examined and evaluated. Three credits. Spring, T. Th. 8, W. 4.

116. Articulation of the Educational Program. (See Division of Administration.)

127. Classroom Management and Technique. This course, to be taken along with Education 129a, will consider such factors in the teaching process as: personality of the teacher, planning the instruction, study procedures, types of teaching, adapting classroom practices to individual differences, discipline, evaluation. Two credits. Any quarter, T. Th. 8.

129a. Practice Teaching in Secondary School. A course in the application of the principles of education. High school and junior high school teaching will be observed, reports on observations made, teaching plans developed, and some apprentice teaching done. This course, or equivalent, is prerequisite to Education 129 and is required for certification. It is urged that students make arrangements for the course before the quarter in which they plan to enroll. Approximately six hours of observation per week are required. Four credits. Any quarter. Time arranged.

129b. Practice Teaching in Secondary School. Required for Secondary School Certificate. Open only to seniors and graduate students. Prerequisites, Education 129a, Psychology 102, Education 111 and Education 113; also eighteen hours of credit in the field in which student expects to do practice teaching. Four credits. Any quarter, time arranged for practice teaching and 4 to 5 Mondays.

145. Safety Education. This course will emphasize (a) the needs for safety education in the modern world; (b) the role of the school in a program for safety; (c) methods and materials for teaching discussions, and readings, stressing various aspects of safety and directed by safety specialists from many areas. Two credits. Winter and Spring, T. Th. 11.

201. Background of Modern Education. (See Division of Graduate Work.)

241. Social Education. (See Division of Graduate Work.)

107. The Teaching of Reading. (See Division of Elementary Education.)

108. Social Studies in the Public School. (See Division of Elementary Education.)

123. The Teaching of English. (See English 123.)

151. Art Education for High School. (See Art 151.)

179. Methods of Teaching Typewriting. (See Secretarial Science 179.)

180. The Teaching of Stenography. (See Secretarial Science 180.)

*This course is in addition to the 30 hours in Psychology and Education.
Candidates for teacher’s certificate in the several fields of vocational education will need to complete the following courses:

**Agriculture:** Psychology 102a, 102b; Education 112, 113, 114, 116, 125, 126.

**Home Economics:** Psychology 102a, 102b; Education 112, 113, 114, 116, 120, 121, 122a.


114. Organization and Administration of Education. (See Division of Administration.)

116. Articulation of the Educational Program. (See Division of Administration.)

120. Methods in Teaching Home Economics. Study of the contribution of Home Economics to the educational program. Analysis of teaching situations based upon observation of school activities; an appreciation of methods of teaching in education for home and family living. Prerequisite or parallel, Psychology 102. Three credits. Winter and Spring, T. Th. 9.

121. Problems in Teaching Home Economics. Study of recent investigations in the field of Home Economics and their bearing upon Home Economics curriculum and teaching methods. (Especially for teachers who are to qualify for a Vocational Certificate. It is suggested that Education 112 and 113 be taken daily the first three weeks and daily the last three weeks of the term simultaneously with this course in the fall term and Education 112 and 114 under the same arrangement winter term.) Prerequisite, Education 120. Four credits. Fall, Winter, and Spring. Time arranged.

Education 122a. Practice Teaching in Home Economics. Observation and teaching of vocational homemaking under supervision in public schools having cooperative agreement. The trainee will leave the campus the middle five or six weeks of the fall or winter term and teach each day a full homemaking program in one of the approved schools. Prerequisites, Education 120 and Education 121. Eight credits. Spring. Time arranged.

Education 122b. Practice Teaching in Home Economics for Dietitians. Designed to meet needs of student dietitians whose responsibilities will involve teaching student nurses, student dietitians, and patients. In the spring quarter the trainee will teach at least one hour daily in one of the approved local schools. Prerequisite, Education 120 with Education 121 taken in the same quarter as Education 122b. Four credits. Time to be arranged.


*Approval of instructor is necessary before student is accepted.
126. Practice Teaching in Agriculture. Practice teaching in approved local vocational agricultural departments under supervision. Trainees will be expected to leave the campus to train in a selected high school of the state for full time. Four to eight credits. Fall, Winter, and Spring. Time arranged. Humpherys

199. Special Problems in Home Economic Education. This course is developed around individual needs of students which are not otherwise provided for in the curriculum. One or two credits any quarter. Time arranged. Phillips

DIVISION OF ADMINISTRATION AND SUPERVISION

E. A. Jacobsen, Chairman.

Required courses: Courses prescribed for an elementary or for a secondary teaching certificate, and in addition, 18 hours chosen from the following courses listed below: Majors in this field meet the academic requirements for Utah certificates in administration and supervision.

114. Organization and Administration of Education. This course deals with the fundamental principles of organization and administration of schools in our American public school system of education with special emphasis on the Utah conditions. Three credits. Fall and Winter, M. W. F. 10. Jacobsen

116. Articulation of the Educational Program. A survey of existing needs for closer articulation of the various educational units and agencies. Discussion of the factors conditioning nature and extent of articulation and of the unifying principles upon which a well articulated education program rests. Three credits. Fall and Spring, Daily 2. Jacobsen

181. School Finance. A study of the importance of finances in a school system and the principles and practices involved in the collecting and the distributing of school revenues, with special deference to the conditions in Utah. Two credits. Fall, T. Th. 11. Jacobsen

201. Background of Modern Education. (See Division of Graduate Work.)

205. Reading and Conference. (See Division of Graduate Work.)

211. Educational Measurements and Statistics. (See Division of Graduate Work.)

221. Advanced School Administration. (See Division of Graduate Work.)

230. Supervision of Instruction. (See Division of Graduate Work.)

DIVISION OF LIBRARY SCIENCE

David W. Davies,* Chairman; King Hendricks, Acting Chairman

Library Science may be used as a teaching major or minor in connection with a major in Education. The major shall consist of not less than 30 credit hours and the minor of not less than 18 credit hours chosen from the following courses:

1. Elementary Library Science. A general course designed to help students become efficient in using books and libraries. Emphasis will be placed upon use of card catalog, periodical indexes, and reference books. Two credits. Fall, T. Th. 8 or M. W. 8. Rich


*On leave.
101L. Second Quarter Reference Materials and Bibliography. A continuation of work undertaken in Library Science 100L which is a prerequisite to this course. Three credits. Spring, M. W. F. 8.


120L. First Quarter Cataloging and Classification. Classification of books according to the Dewey decimal system and cataloging instruction adapted primarily to the use of school and public libraries. Three credits. Staff

121L. Second Quarter Cataloging and Classification. A continuation of the work undertaken in Library Science 120L which is a prerequisite to this course. Three credits. Staff


160L. The Art of the Book. The history of bookmaking and printing. One credit. Time arranged. Staff

Teaching of Reading. (See Division of Elementary Education 107.) Three credits.

Children's Literature. English 24. Four credits.

Speech 18. Five credits.

DIVISION OF GRADUATE WORK

E. A. JACOBSEN, Chairman.

The Division of Graduate Work in the School of Education aims to serve the following purposes:

(a) to provide fundamental courses on a graduate level leading to advanced study and specialization in Education;

(b) to provide training for the several branches of school administration and supervision;

(c) to provide training in connection with the department of psychology for specialists in clinical and guidance work in the schools;

(d) to provide, in connection with other departments, teachers, with a year of graduate work.

In addition to the graduate courses listed, the student may elect upper division courses from the undergraduate divisions, and graduate courses related to the field of specialization from other departments. The selection of courses should be made in terms of the purpose chosen and in consultation with the major professor.

A graduate minor, other than Psychology or Education, may be used in connection with a graduate major in Education.

Education 201. Background of Modern Education. An integration of the history and philosophy of education as a basis for the understanding of modern education. The evolution of educational thought, the sources of great philosophies of education in relation to their times. Five credits. Fall, Daily 10. McClellan
Education 203. Evaluating the Elementary School. Studies evaluating the changing elementary school will be analyzed. Particular attention will be given to organization and curriculum. Newer methods utilized in evaluation will be considered. Enrollment open only to experienced teachers or prospective teachers who have completed their courses in practice teaching. Three credits. Winter, M. W. 4:30 to 6.  

Staff

Education 205. Reading and Conference. A course providing for individually directed study in the fields of one's special interest and preparation. One or two credits per quarter. Any quarter. Time arranged.  

Staff


Education 221. Advanced School Administration. A general study of the work of the school administrator and the principles upon which the profession of school administration is founded and efficiently practiced. Consideration will be given to major educational problems with which the school administrator is confronted. Five credits.  

Staff

Education 230. Supervision of Instruction. Principles and practices of supervision, including the nature and use of the various supervisory techniques to improve instruction. Two credits. Spring; T. Th. 11. Jacobsen

Education 237-8-9. Educational Seminar. This course gives opportunity for the investigation and report of individual problems and for group discussion and criticism on these reports. Minimum of one quarter required of all Education majors. Any quarter. Time and credit arranged.  

Staff

Education 241. Social Education. The implications for education involved in social conditions and social change. The social significance of current educational theories and practices. Three credits. Winter, T. Th. 8, W. 3:30-4:30. Jacobsen

Education 267. Introduction to Research. An inquiry into the nature and sources of research problems with a study of the underlying principles and the method of working out such problems in the field of education. Some attention is given to the matter of thesis writing as a problem related to research. Two credits. Winter. Time arranged. McClellan

Education 271. Research and Thesis Writing. This course provides for individual work in thesis writing with the necessary guidance and criticism. Any quarter. Time and credit arranged.  

Staff

Reading on Current and Special Topics in Psychology. (See Psychology 305a, b, c.)

Research on Special Problems in Psychology. (See Psychology 206.)

Music

W. Woodruff Christiansen, Professor; Walter Welty,* W. H. Manning, Associate Professors.

Courses in the music department are designed to, (a) serve the general cultural needs of all students, (b) meet the major and minor requirements of prospective teachers.

Music 1, 4, 5, 11, 12, 13, 80, 81, 89, may be used for junior college group requirements.

The music department is also a valuable service department; individuals,

*On leave.
groups, and organizations fill a constant and urgent need in the neighboring schools and communities.

Vocal Music Major. Required courses: Music 1, 4, 5, 11, 12, 13, 21, 22, 23, 53a, 54a, 55a, 106, 114, 117, 124, 125, 128, 130, 134. Also sufficient skill to present a creditable solo recital prescribed by the major professor; ability to play second grade piano music at sight, a general course in oral expression, creative dancing; and one year of a foreign language, or a course in foreign language pronunciation. Consult major professor early and often.

Instrumental Music Majors. To complete a major in instrumental music, with recommendation to teach band and orchestra, the following courses are required: Music 1, 12, 13, 111, 112, 113, 114, 80, 81, 121, 122, 123, (121, 122, 123 must be taken before practice teaching) three or more quarters of symphony orchestra, six or more quarters of band as prescribed by the major professor, three quarters or equivalent of piano, sufficient private instruction or equivalent on a band or orchestra instrument for a creditable solo performance, one quarter each private instruction, or equivalent, on a string instrument, a brass instrument, and a reed instrument.

For a music major without recommendation to teach band and orchestra, consult the major professor.

In 1936 the College was awarded a complete Carnegie music set containing 2,000 recordings, 150 bound scores, and 100 selected books of music. This material, together with additions made since that time, is available to students and is used in the music courses.


4, 5. Eye and Ear Training. Devoted to teaching scales, intervals, keys in major and minor modes, reading music at sight and writing music from dictation. A continuous course. Three credits. Fall and Winter, T. Th. 9.

7, 8, 9. Elementary Class Piano Instruction. For students without previous work in piano. General keyboard facility. Sight reading of folk tunes and the easier classics; harmonizing melodies by ear. Recommended for prospective teachers in the elementary schools. One and one-half credits each quarter. Fall, Winter and Spring, M. W. F. 3.

11, 12, 13. Harmony. Prerequisite, familiarity with the piano keyboard. Chord structure and progressions, to and including modulations. Three credits each quarter. Fall, Winter, and Spring, M. W. F. 10.

15, 16, 17. String Ensembles. Offering an opportunity for good players to organize into trios, quartets, and other small units. One credit each quarter. Fall, Winter, and Spring. Time arranged.

18, 19, 20. Symphony Orchestra. Provides training and practical experience in a wide range of orchestral work. Students are required to play at all public appearances of the orchestra. One and a half credits each quarter. (See 118, 119, 120.) Fall, Winter, and Spring. M. W. 12-2.


27, 28, 29. Ladies' Chorus. Same conditions as for men's chorus, applied to women's voices. One credit each quarter. Fall, Winter, and Spring. T. Th. F. 12.

35, 36, 37. Vocal Groups. Offering an opportunity for good voices to organize into trios, quartets, and other small units. One credit each quarter. Fall, Winter, and Spring. Time arranged. See instructor before registering.
38. **Music for Young Children.** A study of material for listening lessons, songs, music games, and simple body rhythms for children of Nursery School age. One credit. Fall, T. 10.  
   **Manning**

41, 42, 43. **Band.** This organization is the College Concert Band. It includes the R. O. T. C. Band and all other students who qualify. Concerts will be given and music furnished for athletic events. State tour end of Winter quarter. Members are required to play at all public appearances of the band. One credit each quarter. (See 141, 142, 143.) Fall, Winter, and Spring, T. Th. 12-2  
   **Christiansen**

R. O. T. C. Band. Band men who are required to take Military Science should register for Military Science and then ask to be assigned to the R. O. T. C. Band.

44, 45, 46. **Brass and Reed Groups.** Brass quartets, sextets, and saxophone quartets. Members will be selected from applicants. One-half credit each quarter. Fall, Winter, and Spring. Time arranged.  
   **Christiansen**

47, 48, 49. **Composition and Analysis.** Practical composition in the small forms from the extended period to the song form with trio. Prerequisite, at least one year of harmony. Two credits each quarter. Fall, Winter, and Spring, T. Th. 9.

70, 71, 72. **Voice Training Class.** The principles of voice training will be studied. Attention will be given to the causes and corrections of improper tone production. As class progresses weekly recitals will be given. Open to all students. Required of all voice majors. Recommended for elementary education students. One and one-half credits. Fall, Winter, Spring, M. W. F. 11.  
   **Manning**

80. **Opera Appreciation.** An intensive study will be made of the world's best operas. Particular attention will be given to the causes and corrections of improper tone production. As class progresses weekly recitals will be given. Open to all students. Required of all voice majors. Recommended for elementary education students. One and one-half credits. Fall, Winter, Spring, M. W. F. 11.  
   **Manning**

81. **Symphony Appreciation.** Complete symphonies will be given by the phonograph method. A careful study will be made of their form and content. Two credits. Winter, T. Th. 3.  
   **Christiansen**

89. **Bach, Beethoven and Brahms.** Their lives and works, their influence upon the development of music, and the influence upon their music of the times in which they lived. Two credits. Spring, T. Th. 9.  
   **Staff**

106. **Music History.** The appreciation of music from its historical and biographical bases, the development of small and large forms from folk music through the opera and the symphony. Not open to freshmen. Three credits. Winter, M. W. F. 9.  
   **Manning**

   **Manning**

   **Christiansen**

114. **Conducting.** The art and technic of effectively conducting choral and instrumental groups. Two credits. Spring, T. Th. 9.  
   **Christiansen**

117b. **Opera Production.** A thorough study of the details involved in the production of opera. Students admitted to this course will be assigned definite responsibilities in the preparation and presentation of opera. Consult instructor before registering. Three credits. Spring, M. W. F. 10.  
   **Manning**
118, 119, 120. Symphony Orchestra. Senior College credit will be given to students of advanced standing. Prerequisite, two years in Orchestra. One and one-half credits. Time as for Music 18, 19, 20.

121, 122, 123. Band and Orchestra Methods. A study of the various band and orchestra instruments, and the essential points in the teaching of them. Designed for students who may teach elementary bands and orchestras or who intend to follow music as a profession. This course must precede practice teaching in instrumental music. Prerequisite: general knowledge of music and average proficiency on at least one instrument. Fall—brass instruments; Winter—reed instruments; Spring—string instruments. Three credits each quarter. Fall, Winter, and Spring, Daily 2.

124, 125, 126. Advanced Chorus. For juniors and seniors who have had choral experience. One credit each quarter. Fall, Winter, and Spring. Men, M. W. F. 12. Ladies, T. Th. F. 12.


131. Secondary School Music Methods. This course is designed to acquaint teachers of music in high school with the problems of teaching band, orchestra, choruses, and voice. Two credits. Spring, T. Th. 10.


141, 142, 143. Band A. Rehearsals to be held jointly with 41, 42, 43. Senior College credit will be given to students of advanced standing. Prerequisites, two years of band. One and a half credits each quarter. Fall, Winter and Spring, T. Th. 12-2.

PRIVATE INSTRUCTION COURSES

The following courses are given through private study only. Appointments and fees must be arranged with the instructor whom you select.

Note: Students taking one lesson a week in any private music study, and getting the required amount of practice and preparation, shall register for one and one-half credits per quarter. Students taking two lessons and getting the required amount of practice and preparation shall register for three credits per quarter.

Note: Written departmental approval must be secured on registration cards if the student plans to take private instruction from anyone other than a member of the regular resident staff. The Department reserves the right to reject credit if departmental standards are not met.

50, 51, 52. Piano. For students having less than two full years of piano instruction. Staff

53, 54, 55. Vocal. Conditions same as for piano. Manning

56, 57, 58. Wind Instruments. All the wind instruments of the band and orchestra. For students having less than two full years of previous training. Christiansen and Associates

60, 61, 62. Violin. For students having less than two full years of previous training. Christiansen and Associates

66, 67, 68. Pipe Organ. Conditions same as for piano. Clark and Associates

150, 151, 152. Piano. For students recommended by an approved teacher, and satisfying the departmental standards for the equivalent of two full years of previous study. Staff

153, 154, 155. Vocal. For advanced vocal students. Manning
156, 157, 158. Wind Instruments. For students satisfying the departmental standards for the equivalent of two full years of previous study.

Christiansen and Associates

160, 161, 162. Violin. For students recommended by an approved teacher and satisfying the departmental standards for the equivalent of two full years of previous study.

Christiansen and Associates

166, 167, 168. Pipe Organ. For advanced pipe organ students.

Clark and Associates

Physical Education

H. B. Hunsaker, W. B. Preston, E. L. Romney, Professors; Rachel B. Yocom, Associate Professor; Delbert Young, Assistant Professor; Kenneth Vanderhoff,* Joseph Whitesides,* Mildred M. Thomas, George Nelson, Instructors.

Service Courses

In the service courses of this Department, an opportunity is given each student to perfect skills in some form of physical activity which will help establish a permanent interest in healthful recreation of the active as well as passive type, the promotion of physical fitness, the building of morale, and the maintenance of health.

A physical examination is given to all students at the beginning of each year in order to advise them properly as to the type of activity best suited to their individual needs.

Women students are required to take physical education service courses for six quarters. Work may be selected by the student; and the same numbered courses may not again be taken for credit. Before a student may enter an intermediate or advanced course, in any activity in which she has completed and received credit for the elementary course, minimum service course requirements must have been satisfactorily completed.

It is recommended that all male students in order to aid national defense take some activity course in Physical Education. A wide range of courses in aquatics, dual, team, individual and outing activities are offered each quarter. Credit in Physical Education will count towards a college degree.

Recreation

The Physical Education department aims to meet the recreational needs and interests of every student whether he is being trained in agriculture, engineering, business, or other professional fields.

This department will try to prepare the future farmer, banker, teacher or doctor for wise use of his leisure time. After courses in this department, students should be so interested in recreation that they will be valuable aid to any community.

Awards will be given to managers of various recreational groups and individual awards for special achievement. There will be groups organized in biking, water sports, winter sports, tap dancing, fencing, archery, horse shoes, tennis, golf, badminton, boxing, swimming, tumbling and social dancing.

The College Health Service

The Health Service is maintained primarily for the care of students who may become ill during their stay on the campus. This service is also looked upon as an educational department to teach preventive medicine and hygiene. Through consultations, examinations, and advice it attempts to point out the causes of ill health, and to present clearly the fundamental laws of good health.

*On leave.
Theory and Professional Courses in Physical Education

Because of the great demand for trained leaders in community recreation and playground management, directors of physical education in high schools, and for high school coaches, this department offers an opportunity to obtain a major or minor in physical education and also to meet the state requirements for certification of teachers of physical education, and coaches in high schools.

Intramural Sports

Intramural sports are conducted as a part of the program of the Department of Physical Education. The department for women, in cooperation with the Women's Athletic Association, has charge of all women's athletics and offers a wide program of intramural sports.

The Department of Physical Education for Men carries on an extensive organized Intramural sports program. Competition in 12-16 sports is carried on in four separate leagues, fraternity, department, club, and all-campus. All male students are eligible and encouraged to participate in one of these leagues. Students who have qualified through the Physical Education Department for "preferred rating," may receive Physical Education credit for Intramural sports.

The function of the intramural program is to give every student moral, social, physical, and educational values derived from competitive athletics. The program of athletics provides for both individual and team endeavor, "athletics for all," which is the purpose of the establishment of intramural sports.

Service Courses for Men

2. Football. One credit. Fall. Daily 4. Young, Romney
4, 5. Boxing. One credit each quarter. Fall and Winter, T. Th. 1. Staff
7, 8. Wrestling. One credit each quarter. Fall and Winter. M. W. F. 1. Nelson
12. Track. One credit. Spring, Daily 3-5. Young
13, 14, 15. Handball. See Department Head before registering. One credit each quarter. Fall, Winter, Spring. Time arranged. Staff
16, 17, 18. Swimming. One credit each quarter. Fall, Sec. 1, M. W. F. 10; Sec. 2, M. W. F. 1. Winter, Sec. 1, M. W. F. 10; Sec. 2, M. W. F. 3. Spring, Sec. 1, M. W. F. 8; Sec. 2, M. W. F. 3. Staff
26, 27, 28. Restricted Gymnastics. Students may register only after consultation with head of department. One credit each quarter. Fall and Winter, Sec. 1, M. W. F. 12; Sec. 2, T. Th. 12. Spring, M. W. F. 1. Hunsaker
34. Tumbling. One credit. Fall, M. W. F. 3; Spring, M. W. F. 2. Hunsaker
36. Badminton. One credit. Fall, T. Th. 9; or Winter, T. Th. 9; or Spring, T. Th. 9. Hunsaker
37, 38, 39. Heavy Apparatus. One credit each quarter. Fall, Winter, and Spring, M. W. F. 11. Bell

Service Courses for Women

40. Speed Ball and Volley Ball. One credit. Fall, Sec. 1, M. W. 8, or Sec. 2, T. Th. 8. Young
41. Basketball. One credit. Winter, Sec. 1, M. W. 9; Sec. 2, T. Th. 9. Sec. 3, T. Th. 8.

42. Softball and Field Hockey. One credit. Spring, Sec. 1, M. W. 12; Sec. 2, T. Th. 12.

44. Tumbling and Stunts. One credit. Spring, T. Th. 1.

45, 46, 47. Restricted Activities. This course is given for those students physically unable to take the required work in physical education. Students may register only after consultation with the head of the department. One credit each quarter. Fall and Winter, Sec. 1 (corrective-restricted, M. W. F. 12; Sec. 2 (restricted), T. Th. 12. Spring, Sec. 1 (corrective-restricted), M. W. F. 11; Sec. 2 (restricted), T. Th. 2.


49. Intermediate Modern Dance. Prerequisite P. E. 48 and satisfactory completion of minimum service course requirements. Further practice and development in modern dance techniques and composition. One credit. Winter, T. Th. 2.

51, 52, 53. Elementary Swimming. One credit each quarter. Fall, Winter, Spring, Sec. 1, M. W. F. 12; Sec. 2, T. Th. 12; Sec. 3, M. W. F. 11.


56. Intermediate Swimming. Prerequisite P. E. 51, 52, 53, and satisfactory completion of elementary minimum service course requirements. One credit. Fall, T. Th. 11. Winter, T. Th. 2. Spring, T. Th. 1.

57. Elementary Badminton. One credit. Fall, T. Th. 9.


154. Advanced Swimming. Prerequisite, P. E. 51 and P. E. 56, and satisfactory completion of minimum service course requirements in both courses or a senior life saving certificate. One credit. Fall, T. Th. 10. Winter and Spring, T. Th. 3.

Service Courses for Men and Women

1. Hiking. One credit. Fall and Spring, Sec. 1, T. 3-5.  

3. Winter Sports. One credit. Winter, Sec. 1, T. Th. 1.

9. Elementary Fencing. One credit. Fall, Sec. 1, M. W. F. 11; Sec. 2, T. Th. 11. Winter, Sec. 1, M. W. F. 10; Sec. 2, T. Th. 11. Spring, Sec. 1, M. W. F. 3.

10. Intermediate Fencing. Prerequisite, P. E. 9 and satisfactory completion of elementary minimum service course requirements. One credit. Winter, T. Th. 1.


63. Recreational Games. One credit each quarter. Fall and Winter, T. Th. 10.

66. Badminton. One credit. Fall, T. Th. 9. Winter, Sec. 1, T. Th. 2; Sec. 2, T. Th. 9. Spring, Sec. 1, T. Th. 9; Sec. 2, T. Th. 2.

67. Elementary Tennis. One credit. Spring, Sec. 1, M. W. F. 8; Sec. 2, T. Th. 8; Sec. 3, T. Th. 9; Sec. 4, M. W. F. 10; Sec. 5, M. W. F. 11; Sec. 6, T. Th. 11; Sec. 7, M. W. F. 3.

68. Elementary Folk Dancing. One credit. Fall, T. Th. 9; Winter, M. W. F. 8.
69. Intermediate Folk Dance. Prerequisite, P. E. 68 and satisfactory completion of minimum service course requirements. One credit. Winter, T. Th. 8.

70. Elementary Tap Dancing. One credit. Fall, Winter, M. W. F. 3; Spring, M. W. F. 2.

71. Intermediate Tap Dancing. Prerequisite, P. E. 70 and satisfactory completion of minimum service course requirements. One credit. Winter, T. Th. 3.

72. Social Dancing. One credit. Fall, Winter, T. Th. 10.


75. Introduction to Physical Education. A survey of the whole field of physical education, showing its relationship to art and enriched living. Two credits. Fall, T. Th. 8.

20, 21, 22. Fundamentals of Sports. A freshman laboratory course for Men Physical Education Majors. These courses are prerequisites for Physical Education 120-121-122. One credit each quarter.

30, 31, 32. Fundamentals of Sports. A sophomore laboratory course for Men Physical Education majors. These courses are prerequisites for Physical Education 130, 131, 132, and are a continuation of the Freshman class. One credit each quarter. Fall, Winter, and Spring, T. Th. 11.

†50. First Aid. The standard American National Red Cross Course in first aid with emphasis upon the practical use of the knowledge as applied to every day life in various occupations. Detailed demonstrations and practice. The American Red Cross First Aid Certificate may be obtained by students in the course who pass a satisfactory examination. Three credits. Spring, M. W. F. 10.

76. Nature and Function of Play. An analysis of the basic principles underlying play; the function of play in the growth, development, and social adjustment of the child and the adult. Two credits. Fall, T. Th. 10.


83. Playground and Community Recreation Leadership. For men and women. Consists of lectures and practical work. Lectures will consider selection of suitable material, and methods of handling various groups. The practice hours will take up games and folk dances. Four credits. Spring, Daily Lab.

Theory and Professional Courses


161-162. Advanced Archery. Prerequisite 60, 61 or 62. Fall, M. W. F. 2; Winter, M. W. F. 2.

165. Advanced Badminton. Prerequisite, P. E. 66, 36 or 57. Women prerequisite, 66, 36, or 57 plus satisfactory completion of minimum service course requirements. One credit. Fall, T. Th. 3; Winter, T. Th. 3; Spring, T. Th. 3.

167. Advanced Tennis. Prerequisite, P. E. 67, and satisfactory completion of minimum service course requirements. One credit. Spring, M. W. F. 2.

168. Square Dancing. One credit. Fall and Winter, T. Th. 1; Spring M.

†Does not satisfy Biological Science group requirement.


86. *Sports Officiating.* A course in sports officiating—considering the knowledge of rules, mechanics of officiating, proper instructions to other game officials such as timers and scorers, and game administration. Two credits. Fall, T. Th. 2.

92. *Organization of Intramural Programs for Women.* This course is designed to study the organization of sports days, play days, tournaments and the administration of intramural activities for women. Two credits. Winter, T. Th. 11.


97, 98, 99. *Physical Education Laboratory.* A course designed for teaching sport and dance fundamentals to sophomore women majoring or minoring in physical education. One credit. Fall and Winter, M. W. F. 1. Spring, T. Th. 10.

104. *Mechanical Anatomical Analysis of Activity.* A study of articulations and muscles with emphasis on movements and actions. The skeleton, manikin, and man himself will afford the laboratory material. Three credits. Fall, M. W. F. 2.

106. *Physiology of Activity.* Changes in important organ systems in relation to muscular activity are treated in this course. Four credits. Prerequisite, Physiology 4. Fall, M. T. W. Th. 1.

120, 121, 122. *Technique of Team Sports.* Designed for men students majoring in Physical Education. P. E. classes 20, 21, 22 are prerequisites for this class. Students will be taught techniques of dual combatives and team sports. Each student will be expected to prepare a teaching syllabus of class work. Two credits each quarter.

130, 131, 132. *Technique of Individual Sports.* Designed for men students majoring in Physical Education. Prerequisites, Physical Education 30, 31, 32. Students will be taught the technique of individual, gymnastics, and aquatic sports. Each student will be expected to prepare a teaching syllabus for the class work. Two credits each quarter. Fall, Winter, and Spring, M. W. F. 10.

141. *Advanced Modern Dance.* A further development of skills in the use of tools of movement, rhythm and music improvisation and dance composition; principles and methods of teaching the modern dance; present trends in the dance in Education. Two credits. Spring, M. W. F. 10.

150. *Methods in Dance.* A course designed for students who are planning to teach Dancing, Tap, Folk, Modern or Social Dancing. A syllabus will be required of each student. Four credits. Spring, M. T. W. Th. 1.

160, 161, 162. *Techniques of Team Sports for Women.* This class is designed for students majoring or minoring in physical education. Students will be taught the techniques of teaching basketball, volleyball, speedball, and field hockey. Prerequisites, P. E. 94, 95, 96 or permission of Chairman of Women’s P. E. Two credits. Fall, M. W. F. 10. Winter, M. W. F. 8. Spring, T. Th. 11.

163, 164, 165. *Techniques of Individual Sports.* This class is designed for women students majoring or minoring in Physical Education. Students will be taught the techniques of teaching tennis, badminton, fencing, golf, archery, swimming, diving, body conditioning, tumbling, stunts, and apparatus. Pre-
requisites, P. E. 97, 98, 99 or permission of Chairman of Women's P. E. Two credits each quarter. Fall, M. W. F. 2. Winter, M. W. F. 3. Spring, T. Th. 3.

179. Camping and Camp Craft. A course designed to give training in camp technique and camp leadership. Different types of camps and their organization, supervision, equipment, and safety will be considered. Several short hikes and an overnight camp will be conducted during the course. Each member registering for the course will be expected to participate in these hikes. Two credits. Fall, T. Th. 11. Spring, M. W. F. 11.


180b. Practice in Corrective Physical Education. Practical application of 180a. Consult corrective instructor before registering. Spring, T. Th. 2. Two credits.

181. Corrective Physical Education. An analysis of the techniques or mechanics of the movements in the classified groups of physical education activities; an analysis of the teaching explanations of how to make movements or coordinations; an analysis of skills; a study of the nomenclatures used in the formulation of a working nomenclature for all the activities. Three credits. Spring, M. W. F. 11.


183. Interpretation of Physical Education Objectives. An analysis of the results and values of physical education activities under leadership in terms of development, adjustment and standards and their relationships as objectives. Five credits. Fall, Daily 9.


185. History of Physical Education. Two credits. Winter, T. Th. 9.

186. Heavy Apparatus. A study of methods of teaching gymnastics such as the horizontal bar, parallel bars, side horse, and rings. Prerequisite, at least one quarter of Elementary Heavy Apparatus. Two credits. Fall and Winter, M. W. F. 11.


189. Methods in Basketball. Coaching and training of basketball teams, beginning with fundamentals; passing, dribbling, and pivoting, with emphasis on the psychology of the game; various methods of defense and offense. Two credits. Winter, M. T. W. 12.

190. Methods in Track and Field. How to train for various track and field events; their form and technique; conduct of the athletic meets; construction, use, assembling of all equipment used by the participants on the field; development of certain types of individuals for certain events. Two credits. Spring, M. W. F. 1.

191. Interpretation of the Health Examination. A study of examination procedures, the detection of physical defects, the general assessment of the health of the individual, and the follow-up program. Three credits. Spring, M. W. F. 11.
Psychology

ARDEN FRANDSEN, Professor; JOHN M. HADLEY,* ARTHUR LEWIS, Assistant Professors.

Courses in the Department of Psychology contribute to the professional training and personal development of students in nearly every department of the College.

A major in psychology should prepare students for diagnostic and remedial teaching and for dealing with personality and conduct problems of children in the elementary school; for psychological counseling in high schools; for teaching psychology, study habits, mental health, and personality development in high school; for personnel work in industry, the U. S. Employment Offices, the Civil Service, etc.; and for graduate study in psychology, education, child development, and social work. It is also a suitable major for students planning to study medicine, nursing, or law after graduating from college.

Requirements for a major in psychology include 40 hours of approved courses from the following: Psychology 3, 54, 75, 102a and 102b, 103a and 103b, 107, 110, 112, 120, 140, 205a, b, c, 206; Mathematics 111; Physiology 5, 145; Sociology 170; Education 107, 110, and 211; and Speech 171.

A minor in psychology (including Psychology 3, 102a, 102b, 103a, 103b, and 75 or 107 or 120 or 140) is recommended for any high school teacher who expects to participate in the school guidance and counseling program and for social workers who do not take an undergraduate major in psychology.

Minor: Eighteen hours of approved courses from those listed above.

3. Elementary General Psychology. A study of the general principles of human behavior including: nature of personality; factors determining development; how we learn, observe, and think; motives of human conduct; dealing with people; and the maintenance of personal efficiency and mental health. Intended for Lower Division students in all schools of the College. Five credits. Fall, Daily 8, 9. Winter, Daily 8, 10. Spring, Daily 9, 11. Lewis


13. Study Habits and Mental Health. A practical course intended to aid students in improving the efficiency of their work and study habits, to avoid "maladjustive" behavior, and to deal rationally with personal problems. Two credits. Winter, T. Th. 1. Spring, T. Th. 1. Lewis

54. Psychology of Business and Industry. The methods and explanatory principles of psychology will be applied to understanding several general problems of business and industry, including: vocational choice and the selection of employees; advertising and selling; marketing and consumer research; conditions for efficient work; and the psychological aspects of training for work in business and industry. (See also Bus. Adm. 54.) Prerequisite, General Psychology or instructor's approval. Three credits. Winter, M. W. F. 9. Frandsen

75. Experimental Methods in Psychology and Education. A study of the scientific method and of specific experimental procedures applied in the study of fundamental problems in psychology and education. Prerequisite, General Psychology. Three credits. Spring, M. W. F. 2. Frandsen

102a. Educational Psychology. A professional course for prospective high school teachers intended to increase understanding of personality and to develop

*On leave of absence.
greater insight into the conditions for effective learning. Applications to development in adolescence of both normal and deviate personalities, to provisions for individual differences, and to learning junior and senior high school subjects will be emphasized. Prerequisites, General Psychology, and for students who have not taken Elementary Statistics, Psychology 102b must either precede or be taken parallel with Psychology 102a. Four credits. Fall, M. T. W. F. 9. Spring, M. T. W. F. 10.

102b. Applications of Statistics to Education and Psychology. An elementary study of the statistical procedures used in handling test scores in the schools and of the concepts needed to read current educational and psychological literature. One credit. Fall, Th. 9. Spring, Th. 10.

103a. Clinical Psychology. Applications of clinical psychology (1) to guidance in planning major life activities—educational, vocational, social, and recreational, (2) to diagnostic and remedial teaching, and (3) to the diagnosis and prevention or correction of conduct and personality maladjustments. Prerequisites: General Psychology and Elementary Statistics. Five credits, Fall, Daily 11.

103b. Clinical Psychology. Students will practice under guidance to acquire skill in diagnosing intelligence by the individual Binet procedure and to learn how to administer and use tests of aptitudes, interests, personality, and adjustment. Prerequisite, Clinical Psychology 103a. Two credits. Winter, T. Th. 2.


110. Child Psychology. A study of the roles of maturation, learning, and environmental conditions in the motor, mental, social, and emotional development of children from birth to adolescence. Generalizations with respect to individual differences, emotions, motivation, how children learn, observe, and think will be applied to understanding and guiding children’s behavior in home, school, and community. Opportunity for observation and applications of psychological methods of child study in the school will be provided. Prerequisite, General Psychology. Three credits. Fall, M. W. F. 2; Spring, M. W. F. 8.

112. Educational Psychology of the Elementary School Curriculum. A study from the point of view of psychological theory and research, of the aims, selection and sequence of content, methods of teaching, provisions for individual differences, and measurement of outcomes in the elementary school curriculum. The tool subjects will be emphasized. Prerequisite, General Psychology. Three credits. Winter, M. W. F. 11.

120. Psychology of Social Behavior. A study of the adjustment of the individual to his human environment, including consideration of learning of social habits, social motivation, language, attitudes, and group behavior. These concepts will be applied in understanding such topics as propaganda, war psychology, group prejudices, morale, and leadership. Prerequisite, General Psychology. Three credits. Winter, M. W. F. 2.

140. Abnormal Psychology. A descriptive and explanatory study of the varieties of mental abnormality—psychoses, psychoneuroses, and minor maladjustments—their causes, the methods of treatment, and the mental hygiene approach in preventing psychological maladjustments. Prerequisite, General Psychology. Three credits. Spring, T. Th. 2.

205a, b, c. Readings on Current and Special Topics in Psychology. Weekly discussions of topics in current magazines plus independent reading either of some especially significant book or of periodical literature on some specialized topic, selected according to each student’s interest. Two credits each quarter. (May be taken 1, 2, or 3 quarters.) Fall, Winter, and Spring, Th. 4.

206. Research on Special Problems in Psychology. Credit and time arranged.
# SCHOOL OF ENGINEERING, INDUSTRIES AND TRADES

**George D. Clyde, Dean**

<table>
<thead>
<tr>
<th>Engineering Division</th>
<th>159</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Engineering</td>
<td>160</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>162</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industrial Division</th>
<th>168</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Vocational Industrial Program</td>
<td>169</td>
</tr>
<tr>
<td>II. Technical Institute Program</td>
<td>171</td>
</tr>
<tr>
<td>Aeronautics</td>
<td>171</td>
</tr>
<tr>
<td>Automotive</td>
<td>174</td>
</tr>
<tr>
<td>Metalwork and Mechanical Drawing</td>
<td>179</td>
</tr>
<tr>
<td>Radio</td>
<td>181</td>
</tr>
<tr>
<td>Woodwork and Building Construction</td>
<td>184</td>
</tr>
<tr>
<td>Industrial Education Program</td>
<td>186</td>
</tr>
<tr>
<td>Industrial Arts</td>
<td>187</td>
</tr>
<tr>
<td>Technical Courses</td>
<td>188</td>
</tr>
<tr>
<td>Professional Courses</td>
<td>188</td>
</tr>
</tbody>
</table>
General Information

The School of Engineering, Industries and Trades consists of two major divisions; namely, Engineering and Industrial. Departments in each of these divisions that offer work leading to graduate or undergraduate degrees, or both, are as follows:

**Engineering Division:**
- Agricultural Engineering
- Civil Engineering

**Industrial Division:**
- Aeronautics
- Automotive
- Industrial Education
- Metalwork and Mechanical Drawing
- Radio
- Woodwork and Building Construction

The Civil and Agricultural Engineering curricula were established in 1888 when the College was founded. Automotive, Metals and Woodwork and Building Construction were also established in 1888, but under the name, Mechanic Arts. Degree work in Radio was established in 1929. Degree work in Aeronautics was established in 1940. The four-year curricula lead to the degree of Bachelor of Science with mention of the specific courses taken.

**Agricultural Engineering.** In Agricultural Engineering, students who complete the prescribed four-year course may specialize in irrigation and drainage, soil conservation, farm machinery, rural electrification, or farm structures, by making an appropriate choice of electives.

**Civil Engineering.** In Civil Engineering, students may choose their major in Irrigation and Drainage, Highways, Structural Design, Sanitary, or General Engineering.

**Industrial Division.** This division offers four-year degree courses in Aeronautics, Auto Mechanics, Metals and Machine Design, Woodwork and Building Construction, Radio, and Industrial Education. In addition, terminal short courses in the trades are offered in the fields of Aircraft Engines, Aircraft Mechanics, Auto Mechanics, Machine Shop Practice, Radio, Carpentry, Welding, Auto Body Reconditioning, Diesel Repair, and Refrigeration and Air Conditioning. The degree curricula in the first five fields are designed to train skilled technicians, supervisors, managers, plant operators, and shop and garage foremen, and the sixth to train teachers in Industrial Arts. The terminal short courses are designed to meet the needs of those who do not desire to remain in college for four years and yet who wish to learn a skilled trade.

**Objectives.** The purpose of each of the four-year curricula is to afford the student an opportunity to secure the thorough, fundamental, and technical education which is necessary for professional work of the highest grade in Engineering or Industries and Trades, and in addition, insure the development of those physical, mental, moral, and social qualities which are essential to high professional attainment.

The purpose of the terminal curricula is to train skilled mechanics and technicians to work in the trades and industries.

**Faculty Advisers.** Personal contact is provided for through a system of advisers who confer frequently with the students about their work.
Technical Studies. Of the total credits required for graduation 124 are in Engineering Technology, 58 in basic sciences and 39 in the humanistic and social areas. The nature of the technical studies is fully explained in the descriptions of the several courses in the respective curricula.

Technical Lectures. During the freshman year all engineering students participate in a series of technical lectures delivered by members of the engineering faculty and engineers engaged in professional work who are brought in for this purpose. These lectures constitute a general introduction to the nature of and opportunities in the engineering profession.

Engineering Societies. General professional association and advancement are promoted by the activities of the student branches of the national engineering societies, of which the following are represented either by faculty membership or student chapters, or both: American Society of Civil Engineers, American Road Builders' Association, and American Society of Agricultural Engineers.

Surveying Camp. During the summer session following the Sophomore year a surveying camp is held where plane, topographical, and hydrographic surveying are taught.

Engineering Seminars. Engineering seminars are a feature of the advanced engineering work.

Field Trips. Field trips to local construction projects, engineering works, and industries are scheduled for all Engineering and Industrial Division students. All seniors in Engineering are required to take a supervised field trip covering the major engineering works in the western United States. This trip is scheduled for the last two weeks of the spring quarter. Estimated cost of trip is $30 to $50.

Opportunity for Graduates. The tremendous modern development of industry, the necessity for control and development of natural resources, the rapid advance of transportation and communication, and the development of structures to meet the needs of society give assurance that future graduates in the Engineering and Industrial Divisions will have ample opportunity for professional employment of an interesting and remunerative character.

Personnel Service. The School of Engineering, Industries and Trades, through its faculty, establishes definite contacts with those industries, corporations, municipal, state, and federal agencies that employ technically trained men. Employment assistance is given the members of each graduating class, the alumni who desire to change positions, and the undergraduates who wish summer employment.

Admission. Engineering and Industrial Divisions. For general requirements, see statement on page 39. In addition to these general requirements, all students entering the engineering division must present the equivalent of, or take without credit toward graduation, Math. 33 and 34.

All students over eighteen years of age are eligible to follow the terminal short-course curricula. Students, 16 years old or over, who have not graduated from high school may take this work as vocational students upon the recommendation of the principal of their high school.

Scholarship. The faculty reserves the right to accept toward graduation only those credits with a grade of C or better.

Graduation. Candidates for graduation must satisfy the prescribed curriculum for their elected major, and in addition, physical education and basic Military Science.

ENGINEERING DIVISION

The Engineering Division offers undergraduate and graduate work in Civil and Agricultural Engineering.
For nearly a century in America, those agricultural problems that have demanded the help of engineers have been solved by civil, mechanical, and electrical engineers. During the last quarter century, the need and value of engineering services in agriculture have grown so rapidly and widely as to demand the development of a major field of engineering designated as Agricultural Engineering.

The Department of Agricultural Engineering offers instruction in courses involving the application of engineering knowledge to the solution of farm problems. The most important of these problems are in the fields of farm machinery, farm motors, rural electrification, farm buildings, farm sanitary equipment, soil erosion control, irrigation, and drainage.

A four-year curriculum leading to a Bachelor of Science Degree in Agricultural Engineering is offered. This curriculum includes mathematics, arts and sciences, fundamental subjects in the different engineering departments, agricultural courses selected to familiarize the student with modern agriculture, and a thorough treatment of the Agricultural Engineering courses.

Graduates from this curriculum have opportunity to work in the following fields: (a) the manufacture of farm machinery and equipment; (b) irrigation, drainage, and soil conservation; (c) rural electrification; (d) designers and contractors for farm buildings; (e) teaching, research, and extension in colleges, experiment stations, and in the United States Department of Agriculture; (f) agricultural engineering experts for farm papers and technical magazines; (g) salesmen and field experts in farm equipment; and (h) superintendents or managers of large farms.

Students majoring in Agricultural Engineering should be well versed in farm practices and have a real interest in the agricultural industry.

The Agricultural Engineering Department has available for its use approximately 6,500 sq. ft. of laboratory space. The farm power and machinery laboratory is equipped to service, overhaul, and maintain internal combustion engines, farm machinery, and heavy-duty equipment. The farm structures laboratory is arranged to develop exercises in the planning and construction of entire farm structures on the model basis. The facilities of the irrigation, drainage, and soil conservation laboratories are ample to conduct both research and class exercises in all their various divisions. These laboratories are housed in the Engineering and Agricultural Engineering Buildings.

*On leave.

**CURRICULUM IN AGRICULTURAL ENGINEERING**

Degree: Bachelor of Science in Agricultural Engineering

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<th>Course</th>
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<th>Sophomore</th>
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<tbody>
<tr>
<td>CE 61, 62</td>
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<td>AE 12</td>
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<td>CE 63</td>
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<td>CE 84, 85</td>
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<tr>
<td>Chem. 10, 11</td>
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<td>CE 65, 66</td>
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<tr>
<td>English 17, 18, 19</td>
<td>3</td>
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<td>Math. 98, 99, 122</td>
<td>5</td>
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<tr>
<td>Physics 20</td>
<td>5</td>
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<td>Phys. 21, 22</td>
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*Students deficient in high school mathematics, Algebra (b) and Solid Geometry, must register for Math. 34 during the fall quarter and Math. 33 during the spring quarter of the freshman year. Math. 33 and 34 do not count toward graduation.*
### Junior Courses

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<th>Course</th>
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<tbody>
<tr>
<td>CE 101, 102, 103</td>
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<td>CE 108, 109</td>
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<tr>
<td>CE 141, 142</td>
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<td>CE 140</td>
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<tr>
<td>CE 196, 197</td>
<td>4</td>
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<td>B.A. 100</td>
<td>3</td>
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<td>Eng. 111</td>
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### Senior Courses

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<th>Course</th>
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<th>W</th>
<th>S</th>
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<tbody>
<tr>
<td>CE 143, 145</td>
<td>4</td>
<td>—</td>
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<tr>
<td>AE 108, 117</td>
<td>—</td>
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<td>AE 109, 115</td>
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A study of the basic equipment found in modern dairy plants; their accessories and upkeep. Four credits. Fall, M. W. F. 10; Lab., F. 2-5.

Daines

A study of factors underlying efficient and economic use of water in irrigation. Irrigation methods and their relation to soils and irrigation efficiencies; the plant and irrigation; irrigation water supply, its physical control and measurement. Four credits. Spring, M. W. F. 8; Lab., F. 2-4.

Milligan

### AE 11. Forging and Bench Metal Work.
Fundamental operations of forging such as shaping, bending, forge welding, hardening, and tempering. Use of tools and the fundamental bench operations. Two credits. Fall and Winter, T. Th. F. 11-1, or M. W. F. 11-1.

Egbert

### AE 12. Irrigation Practice.
Sources and conveyance of irrigation water, farm pumping plants, water measurements, preparation of land for irrigation, soil properties and plant characteristics in relation to irrigation, alkali, duty of water, and irrigation efficiencies. Three lectures and one laboratory. Four credits. Fall and Winter, T. Th. F. 11-1, or M. W. F. 11-1.

Milligan

### AE 13. Farm Machinery Repair.
Applied problems in farm machinery repair and maintenance. Prerequisite, AE 11. Two or three credits. Spring, M. W. F. 11-1, or 11-2.

Egbert

### AE 14a. Farm Motors for Agricultural Students.
The principles, operation, care, and repair of internal combustion engines and electric motors. Three credits. Winter, T. Th. 11; Lab., Th. 3-6.

Daines or France

### AE 15a. Farm Machinery for Agricultural Students.
Principles of mechanics and materials as applied to farm machinery. The operation, adjustment, and care of the various types of agricultural machines. Three credits. Winter and Fall, T. Th. 11; Lab., W. 3-6.

Daines

### AE 105. Farm Woodwork and Buildings for Agricultural Students.
Location, planning, and construction of farm buildings. Wood and metal preservatives, fences and fencing, and the farm workshop. Prerequisite, W. W. 61b and A. E. 11. Five credits. Fall and Spring, M. W. F. 8; Lab., T. Th. 9-12. Extra lab. sections arranged.

Coulam

### AE 106. Farm Structures.
Economics of Farm Buildings: insulation as it involves heating and ventilating; mechanics of farm buildings; types of construction; building materials; location and planning of the farmstead; fundamental requirements and design of farm buildings common to western agriculture. Six credits. Fall, M. W. Th. F. 11 Lab., M. W. 2-5.

Staff

Extent and kinds of erosion; rate of water absorption, soil erodibility, soil vegetation and cultural practices. Erosion control structures, surveys for and hydraulic design of terraces, terrace outlets and soil saving dams. Tillage and farming methods, strip-cropping, erosion and alkali problems on irrigated land. Four credits. Winter, M. W. F. 9; Lab., M. 2-5.

Milligan
AE 109. Farm Utilities. Modern methods of heating, lighting, ventilating, water supply, and farm sanitation; and farm electrical appliances. Four credits. Winter, M. W. F. 10; Lab., F. 2-5. Milligan

AE 110. Pumps and Pumping. Selection and installation of pumping equipment, theory of pumps, power schedules and cost of pumping. Two credits. Spring, T. Th. 11. Milligan

AE 111. Mechanisms in Farm Machinery. A study of mechanical methods of transmitting motion of farm machines, including cams, gears, universal joints, etc. Fall, T. Th. 10; Lab., Th. 2-5. Daines

AE 115. Farm Implements. Selection, operation, adjustment and care of the various types of agricultural machines. Four credits. Winter, M. W. F. 8; Lab., F. 2-5. Daines

AE 116. Farm Tractors and Repair. A study of design, operation, and performance of the farm tractor. Efficiencies and ratings as determined by the Nebraska Tractor Tests. Tractor troubles and overhauling. Prerequisite, AE 14 or its equivalent. Five credits. Winter, M. W. F. 10; Lab., T. Th. 2-5. Daines

AE 117. Farm Machinery Design. Fundamentals of Farm Machinery Design including draft requirements of farm implements. Selection of metals, stress analysis, layout and construction of farm machines. Five credits. Spring, M. W. F. 10; Lab., T. Th. 2-5. Daines

AE 199. Agricultural Engineering Seminar. Current topics in planning, financing, design, and construction of engineering projects of interest to agricultural engineers. Required of all seniors. Two credits. Winter, T. Th. 9. Milligan

AE 212. Problems in Irrigation Agriculture. Advanced work on the major problems in agriculture under irrigation, including management of irrigation projects, consolidation of irrigation companies, formation of soil conservation districts, irrigation efficiencies, erosion control, irrigation and the alkali problem. Instruction in residence or in absentia. Each quarter. Time arranged. Credit according to work done. Israelson

AE 230. Special Problems in Agricultural Engineering. Independent study of chosen problems in agricultural engineering, given under the direction of a member of the department staff. The student is expected to develop his own initiative in pursuing these problems. Standard formal typewritten reports are required. Prerequisite, Junior standing. Each quarter. Time and credit arranged. Staff

AE 249. Advanced Irrigation Institutions and Management. Problems in laws governing the acquirement and adjudication of water rights, and in the distribution of water according to established rights; the improvement of irrigation and drainage enterprises; and operation problems. Instruction in residence or in absentia Each quarter. Time arranged. Credit according to work done. Staff

Civil Engineering

George D. Clyde,* H. S. Carter, O. W. Israelsen, H. R. Kepner, Professors; C. H. Milligan, Associate Professor; E. M. Stock,* Assistant Professor; D. K. Fuhriman,* Spencer Daines, Instructors.

Civil Engineering consists of the economic application of the laws, forces, and materials of nature to the design and construction of irrigation and drainage systems, highways, railways, bridges, buildings, dams, water supply systems, hydroelectric plants, and many other works which are a part of the requirements of civilization today.

The curriculum in Civil Engineering has been carefully planned and is accredited by the Engineering Council for Professional Development. It is based upon a thorough training in English, Mathematics, Physics, and Chemistry, combined with drawing, surveying, mechanics, hydraulics, and economics. Upon this substructure is built a superstructure consisting of the applications of these subjects to the many phases of Civil Engineering.

*On leave.
A summer surveying camp is required, and academic work is supplemented by local field trips during the junior year, and a major field trip of approximately two weeks' duration during the senior year. These field trips provide opportunity for first hand study of projects under investigation, construction and after completion. All field trips are carefully planned and are carried out under the joint direction of the Faculty and the representatives of the work being inspected.

An analysis of the status of the Civil Engineering graduates from the Utah State Agricultural College shows that approximately 80 per cent are in federal, state, city, or county positions, and about 20 per cent in private practice or working for private corporations. Finding employment for graduates has never been a problem at this institution.

The Departments of Engineering are housed in the Engineering Building where well-equipped laboratories and classrooms provide ample facilities for the work in engineering. The irrigation and hydraulic laboratories are equipped with pumps, turbines, water measuring devices, pipe lines, and models of hydraulic structures. A model hydraulic laboratory demonstration unit is available for instruction and laboratory use. The soil mechanics laboratory is equipped with the latest machines and instruments for determining the engineering properties of soil. The laboratories are equipped for testing both metallic and non-metallic materials. Standard testing equipment for determining the physical properties of timber, metals, clay products, concrete and aluminous materials are available. The structural laboratories are equipped for demonstration and investigation of statically indeterminate structures using Reck's method and the Photo-elastic Polariscope.

CURRICULUM IN CIVIL ENGINEERING
Degree: Bachelor of Science in Civil Engineering.

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Summer Camp 9 credits (six weeks)

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Students deficient in high school mathematics, Algebra (b) and Solid Geometry, must register for Math. 34 during the fall quarter and Math. 33 during the spring quarter of the freshman year. Math. 33 and 34 do not count toward graduation.

Candidates for advanced military will be considered special cases in planning Junior and Senior work.
### Course: CE 125, 124, 127
- F: 3
- W: 3
- S: 3

**Major:** Highway Engineering

### Course: CE 130, 131, 132
- F: 3
- W: 3
- S: 3

**Major:** Structural Engineering

### Course: CE 147, 149, 160
- F: 3
- W: 3
- S: 3

**Major:** Irrigation Engineering

### Course: Bact. 10 CE 144, 194
- F: 3
- W: 4

**Major:** Sanitary Engineering

### DESCRIPTION OF COURSES

#### CE 61. Engineering Drawing
Use of instruments, lettering, applied geometry, orthographic projection and technical sketching. Two credits. Fall, M. W. 2-5.

#### CE 62. Advanced Engineering Drawing
Pictorial representation, conventional representation, dimensioning, working drawings and lettering. Prerequisite, CE 61. Two credits. Winter, M. W. 2-5.

#### CE 63. Descriptive Geometry
Principal and auxiliary views; points, lines, and planes; developments, intersections, and warped surfaces; mining problems. Prerequisite, CE 61. Three credits. Spring, T. 10; Lab., M. W. 2-5.

#### CE 65, 66. Engineering Problems
Practical Engineering problems solved by the use of coordinated applications of algebra, trigonometry, calculus, and physics. Methods of computations include the use of logarithms, slide-rule, and calculating machines. Special emphasis is placed upon the development of good habits of work and study. Prerequisites, Math. 97, Physics 22 completed or taken concurrently. One credit each quarter. Winter, Spring, Th. 8-10.

#### CE 81. Plane Surveying
Use of tape, hand level, level, transit, compass, etc., in field problems. Differential and profile leveling, traversing, plotting, mapping, and care of engineering instruments. Prerequisites, algebra and trigonometry. Three credits. Fall, T. 8, T. Th. 2-5.

#### CE 82. Mapping and Office Practice
Practice in mapping of the various kinds of surveys that may be encountered by the engineer in working up field notes. Prerequisite, CE 81. Three credits. Winter, W. 1; Lab., M. W. F. 3-5.

#### CE 83. Plane Surveying
Topographical surveying and mapping, introduction to route surveying, cross-sectioning, some rural and city surveying, and solar observations. Prerequisite, CE 81. Three credits. Spring, T. 8; Lab., T. Th. 2-5.

#### CE 84. Elements of Surveying

#### CE 85. Advanced Surveying
Problems in chaining, leveling, curves, spiral, stadia, and city surveying. Prerequisite, CE 82 or 84. Four credits. Spring, M. W. 8; Lab., M. W. 2-5.

#### CE 86. Summer Surveying Camp for A.E.s
Surveying office and field practice in camp. Topographic, photogrammetric, land, and hydrographic surveying. The student pays his own transportation and living expenses and the regular quarter registration fee. Prerequisite, CE 85 or equivalent. Four credits. First three weeks of Summer School.

#### CE 87. Summer Surveying Camp
Surveying office and field practice in camp. Topographic, land, route, geodetic and hydrographic surveying. The student pays his own transportation and living expenses and the regular summer quarter registration fee. Prerequisite, CE 85 or equivalent. Nine credits. Summer Session.

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*Students may elect other subjects in the College Curriculum than those listed as Senior Electives, under the general supervision of the Dean and will be classed as majors in General Engineering.*
SCHOOL OF ENGINEERING


CE 102. Engineering Mechanics. The first part of the course covers kinetics of bodies in translation, rotation, and plane motion, relative motion, work and energy, impulse and momentum. The latter part of the course covers properties of engineering materials, stress and strain due to central and torsional loads. Prerequisite, CE 101. Four credits. Winter M. W. F. 10; Lab., F. 2-4.

CE 103. Engineering Mechanics. Strength of materials, stresses in beams, deflection, combined axial and bending loads, compression members, principal stresses, fatigue, impact and energy loads and special topics. Prerequisite, CE 102. Four credits. Spring, M. W. F. 10; Lab., Th. 9-11. Kepner


CE 109. Materials of Engineering. Composition and physical properties of metals used in structures and machines. Laboratory tests of specimens subjected to tension, compression and shearing stresses. Two credits. Spring, T. Th. 2-5. Daines

CE 111. Structural Design. Principles of structural analysis and design applied to simple and to continuous structures of wood, steel and reinforced concrete. Prerequisite, CE 106. Five credits. Spring, M. W. F. 9; Lab., T. Th. 2-5. Kepner


CE 124. Street and Highway Traffic Control. Collection and analysis of traffic data; causes and remedies for traffic congestion and accidents; traffic control devices; illumination of streets and highways; economics and administration of traffic control. Prerequisite, CE 120. Three credits. Fall, T. Th. 10; Lab., F. 2-5. Carter

CE 125. Highway Design. Theory and practice in the design of rural highways. Preparation of highway plans and profiles, mass diagrams, right-of-way surveys, and drainage features. Prerequisite, CE 85. Three credits. Fall, T. Th. 11; Lab., Th. 2-5. Carter


CE 131, 132. Structural Design Problems. These courses are arranged to provide additional work in the analysis and design of structures for those desiring to specialize in the structural field. Prerequisites, CE 105, 106. Three credits. Winter, T. Th. 11; Lab., W. 2-5; Spring, T. Th. 11; Lab., W. 2-5. Kepner
CE 140. Fluid Mechanics Laboratory. A general laboratory course including problems and experiments on the flow of gases and liquids; measurements of flow using Pitot tubes, manometers, nozzles, Venturi meters, orifices, weirs, Parshall flumes, current meter; pipes and open channels; turbine and pump testing; logarithmic plotting and use of tables and charts. Two credits. Spring, W. F. 2-5.

CE 141. Fluid Mechanics. A general course in Fluid Mechanics, including the fundamental principles of hydrostatics and hydrodynamics applied to flow of water, air, and other fluids. Prerequisites, Physics 21 and Mathematics 99. Three credits. Fall, T. Th. 9; Lab., 2-5.

CE 142. Hydraulics and Hydraulic Problems. Problems in fluid pressure and equilibrium; flow of water through orifices, over weirs, in open and closed channels; turbulent and stream-line flow, non-uniform flow, and water measurement. Prerequisite, CE 141. Three credits. Winter, T. Th. 9; Lab., M. 2-5.

CE 143. Hydrology and Meteorology. The course treats occurrence, utilization, and control of water; weather and climate as they affect the water cycle; precipitation, evaporation, transpiration, and runoff; methods of collection and use of hydrologic data; extension of precipitation and runoff records; precipitation-runoff relations, mass diagrams, duration curves, and flood flows; water supply analysis and stream flow forecasting. Four credits. Fall, M. W. F. 8; Lab., T. 2-5.


CE 147. Design of Water Control Irrigation Structures. Dams, diversion works, sluices, drops and chutes, spillways, wasteways, headgates and check gates. Prerequisite, CE 146. Three credits. Fall, Lect., T. Th. 11; Lab. Th. 2-5.

CE 148. Hydraulic Machinery. Design of machinery used in generation of power and in pumping. Tangential and reaction turbines and centrifugal pumps. Installation and operation. Prerequisite, CE 142. Three credits. Spring, T. Th. 11; Lab., M. 2-5.

CE 149. Irrigation Institutions. Laws governing the acquirement, adjudication and distribution of water rights; reclamation projects, mutual companies, irrigation districts, commercial companies and state water codes. Three credits. Winter, M. W. F. 11.


CE 181. Photogrammetry. The science or art of utilizing photographs of the earth's surface for making surveys, maps and land utilization studies. Planimetric maps, mosaics and restituted photographs, their construction and uses. Prerequisite, CE 83 or senior standing in forest, range or wildlife management, geology, landscape architecture, aviation or advanced military science. Three credits. Winter, M. W. 11; Lab., T. 2-5.


CE 194. Sewerage. Principles of design, construction, and maintenance of sewer systems. Treatment of sewage by physical, chemical, and biological action and methods of final disposal. Prerequisites, CE 141, CE 144, Bact. 10. Four credits. Spring, M. W. F. 11; Lab., M. 2-5. Carter


CE 198. Civil Engineering Seminar. Current topics in financing, design, and construction of engineering projects of interest to civil engineers. Required of all seniors. Two credits. Winter, T. Th. 10. Carter

CE 199. Engineering Conferences. Discussion of the salient and unique features of engineering projects by students, staff members and visiting engineers. Emphasis is placed on the development of extemporaneous ability in students. Required of all seniors. Two credits. Spring, T. Th. 10. Staff

CE 200. Dams. Advanced work in the design of dams for storage reservoirs. High earth dams and masonry dams given special attention. For graduate students. Open to specially prepared seniors. Two credits. Fall. Time arranged. Staff

CE 201. Advanced Hydraulic Design. Advanced work in design of pipe lines, flumes, spillways, diversion weirs, headgates, wasteways, sluices, silt control, and other hydraulic structures. For graduate students. Open to specially prepared seniors. Prerequisites, CE 147 and 148. Two credits. Winter. Time arranged. Staff


CE 203. Advanced Structural Design. Design and cost comparisons of timber, steel, and masonry structures. Prerequisite, CE 111. Time and credit arranged. Kepner

CE 220a, b, c. Advanced Highway Engineering. Economics of location and design; selection, improvement and maintenance; traffic control; administration, finance and jurisprudence; as applied to rural and city highways. Prerequisite, graduate standing in civil engineering. Time and credit arranged. Carter

CE 241. Irrigation and Drainage Research. The regular research activities of irrigation and drainage staff members afford excellent opportunities for direction of student research projects. A qualified student may elect a problem in any phase of irrigation or drainage in the field of Civil Engineering for study at the College or elsewhere. Results in research may be used in part to meet the requirements of an advanced degree. Credit according to work done. Each quarter. Time arranged. (See also C. E. 201.) Staff

CE 250. Advanced Soil Mechanics. Theoretical and laboratory aspects of basic physical properties of soils, with applications to soil problems in agriculture and in engineering. Students are assigned individual laboratory studies. Time arranged. Any quarter. From two to five credits according to accomplishments.


INDUSTRIAL DIVISION

AARON NEWEY, Professor Emeritus; ERNEST C. JEPPSEN, Local Director of Industrial Education; S. R. STOCK,* D. A. SWENSON, FREDERICK PREATOR, Associate Professors; S. R. EGBERT, JOSEPH COULAM, LARRY S. COLE, WILLIAM E. MORTIMER, ALEXANDER GILBERT, Assistant Professors; DONALD B. GREENWOOD,* LEROY FRANCE,* ANTOINE B. KEMP, BERT V. ALLEN, OLIVER LUCHERINI, CLIFF HURST, E. EARL HOLDEN, *INSTRUCTORS.

The Industrial Division is one of the two divisions in the School of Engineering, Industries, and Trades. It is composed of six departments, namely: Aeronautics, Automotive, Metalwork, Radio, Woodwork, and Industrial Education. This division offers three major programs, which are:

I. Vocational Industrial Program. Trade training in:
   A. Acetylene and Electric Welding
   B. Aircraft and Engine Mechanics
   C. Auto Body and Paint Reconditioning
   D. Automotive Repair
   E. Carpentry
   F. Diesel Repair
   G. Machine Shop Practice
   H. Radio Service and Repair
   I. Refrigeration and Air Conditioning

   The completion of any curriculum in this program leads to the Terminal Certificate.

II. Technical Institute Program. Technician training in:
   A. Aeronautics
   B. Automotive
   C. Metalwork
   D. Radio and Electronics.
   E. Woodwork and Building Construction

   The completion of any curriculum in this program leads to the Bachelor of Science Degree in Technology.

III. Industrial Education Program. Teacher training in:
   A. Industrial Arts Education
   B. Trade and Industrial Education

   The completion of either curriculum in this program leads to the Bachelor of Science Degree in Industrial Education.

   The Master of Science curriculum is available for students who wish to do graduate work in Industrial Education.

   In addition, this Division offers many service courses to accommodate other departments on the campus.

*On leave.
I. Vocational Industrial Program
(Terminal Certificate)

E. C. Jeppsen, Local Director; Antone B. Kemp, Bert V. Allen, Oliver Lucherini, Clyde Hurst, E. Earl Holden, Instructors.

In cooperation with the Federal and State Departments of Education, the Industrial Division offers in the Vocational Industrial program, specialized training in nine of the major trades of the state. This program offers technical training in the practices of industry with latest methods, modern equipment, and live and productive work. The instructors are all men with years of successful trade experience and carry with them the full respect of their trade. Each course includes technical instruction one hour daily, shop practice in the laboratory four hours daily, and general related information one hour daily.

A close cooperation is maintained between the school and industry with problems of training and placing of students considered jointly with a trade advisory committee for each trade. Students satisfactorily completing the two year training program will be awarded a state certificate and will be prepared to enter the trade as a mechanic helper or an advanced apprentice. Further description of these courses will be found in the departments where they are listed. For entrance requirements, see page 39.

ACETYLENE AND ELECTRIC WELDING
(Type A Unit Day Trade)

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AIRCRAFT AND ENGINE MECHANICS
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AUTO BODY AND PAINT RECONDITIONING
(Type A Unit Day Trade)

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### AUTOMOTIVE REPAIR
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### DIESEL REPAIR
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### MACHINE SHOP PRACTICE
(Type A General Industrial)

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### RADIO SERVICE AND REPAIR
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### REFRIGERATION AND AIR CONDITIONING
(Type A Unit Day Trade)

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II. Technical Institute Program

Present-day industrial projects are designed by the engineer, interpreted and supervised by technicians, and constructed by skilled tradesmen. The Technical Institute Program is a four-year technical program designed to prepare such technicians for modern industry. The Technological Curricula that follow are described under the departments in which they are listed.

Aeronautics

ALEXANDER GILBERT, Assistant Professor; BERT V. ALLEN, E. EARL HOLDEN, Instructors.

The Department of Aeronautics offers instruction for the thorough training of skilled aircraft and aircraft engine mechanics and aeronautical technicians. Its curricula, equipment, and instructors have been been certified, giving it a rating as an approved school for the training of aircraft and engine mechanics. Satisfactory completion of the two year curriculum qualifies the graduate to apply for both Civil Aeronautics Administration Government Airplane and Airplane Engine mechanic certificates. It is important to note that this training fits the graduate for both airline and manufacturing employment. The training is based upon the definite objective of scientifically and systematically developing students to a point where they can assume a responsible position in the industry.

The college is a fully certified Air Agency of the Federal Government. It holds Certificate No. 1175 covering the training of combined aircraft and aircraft engine mechanics; Certificate No. 2353 covering Repair Station authorization for the repair of aircraft of composite construction, aircraft of all-metal construction, aircraft engines, aircraft all-metal propellers and metal hubs, aircraft wood propellers and their metal hubs, and aircraft instruments; also Certificate No. 1899 covering aeronautical ground school for primary and advanced flight students.

The facilities consist of fully equipped aircraft laboratories and class rooms covering approximately 22,000 square feet of area in the Trades and Industries and Engineering Buildings. Complete laboratories and equipment for instructon in aircraft engines, propellers, general aircraft mechanics, aircraft electrics, aircraft hydraulics, and aircraft instruments are available. All of these laboratories are equipped with the latest type of engines, propellers, instruments, and other units necessary for training in these fields; such as electro-plating, magneto and carburetor testing, and sandblast equipment. Supplementary to the aircraft laboratories are the Welding, Machine Shop, Sheet Metal, and Woodwork Departments. Modern aircraft are available for instructional purposes, and advanced studies are conducted in the Repair Station under actual conditions met within the industry. All courses are being constantly revised due to the rapid advance of the aircraft industry.

CURRICULUM IN AERONAUTICS

Degree: Bachelor of Science in Aeronautics.

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17 18 19
### Description of Courses

The following courses (listing Technical, Shop, and Related) offer respectively, the technical instruction, shop practice, and closely related information for the particular trade. The related information may include Trade Math., W. W. 6, 7, 8; and Trade Problems, Auto 48, 49, 50; or Trade English, English 17, 18, 19; and Trade Drawing, M. W. 91, 92, 93.

**Aero 5, 5a. Composite Aircraft Structures.** (Technical, Shop, and Related.) Training in design, construction, and repair of composite aircraft. Units include wood structures, steel structures, fabric work and finishing, control systems, landing gears, engine mounts, and pertinent Civil Air Regulations. This is an introduction to aircraft: a study of airfoils, types of aircraft, aircraft structures, parts and fittings, design factors, methods of fabrication, materials and processes, stress and strain. Fall quarter. Technical, five credits, Shop, five credits, Daily 1-5. Related, five credits.

**Aero 6, 6a. All-Metal Aircraft Structures.** (Technical, Shop, and Related.) Training in design, construction, and repair of all-metal aircraft. Units include lay out, template and flat plate development, bend allowance, hand forming, riveting procedure, special tool construction, power press and power shear operation, heat treatment, corrosion prevention, and pertinent Civil Air Regulations. This is the adaptation of stressed skin aircraft construction: a study of strength, weight, and use of aluminum alloys; design factors; methods of fabrication; fittings, forgings, and extrusions; monocoque, and semi-monocoque structures; stress and strain; material and processes. Winter quarter. Technical, five credits, Shop, five credits, Daily 1-5. Related, five credits.

**Aero 7, 7a. Aircraft Maintenance.** (Technical, Shop, and Related.) Training in maintenance, operation, repair and alteration of modern aircraft and miscellaneous equipment. Units include aircraft hydraulics, aircraft instruments, aircraft electrical equipment; installation and general servicing of components; landing gears and retracting mechanisms; rigging; weight and balance computations; engine and propeller installations; periodic inspections; procedure and recording of repair and alterations; time and material cost estimates; material and equipment requirements; and pertinent Civil Air Regulations. This is a thorough study of the operation of an approved Civil Aeronautics Administration Aircraft Repair Station. Spring quarter. Technical, five credits, Shop, five credits, Daily 1-5. Related, five credits.

**Aero 8, 8a. Aircraft Powerplants.** (Technical, Shop, and Related.) Training in design, operation, and repair of modern air cooled and liquid cooled aircraft engines. Units include power sections, accessory sections, reduction gears, cylinders and valve mechanisms, supercharger sections, and pertinent Civil Air Regulations. This is an introduction to the high performance aircraft internal combustion engine: A study of specifications and tolerances, horse power curves, M.E.P., B.M.E.P., B.H.P., design factors, magnetic and microscopic inspection methods, materials and processes, volumetric efficiency, and compression ratios. Fall quarter. Technical, five credits, Shop, five credits, Daily 1-5. Related, five credits.
Aero 9, 9a. Aircraft Powerplant Accessories. (Technical, Shop, and Related.) Training in design, operation and repair of modern aircraft engine accessories. Units include float and diaphragm type carburetors, fuel injection systems, lubricating systems, magnets, generators and voltage control systems, batteries, starters; vacuum hydraulic and fuel pumps; pertinent Civil Air Regulations. This is a study of combustion and combustible mixtures, electricity and magnetism, induction systems and superchargers, fuels and lubricants. Winter quarter. Technical, five credits, Daily 1. Shop, five credits, Daily 2-5. Related, five credits. Gilbert

Aero 10, 10a. Aircraft Powerplant Maintenance. (Technical, Shop, and Related.) Training in maintenance, operation, repair and alteration of modern aircraft powerplants. Units include periodic inspections; airline maintenance service; diagnosis of engine malfunctioning; engine installation, test, and servicing; lubricating and fuel systems; hydromatic, constant speed, controllable pitch, and wood propellers; equipment, tool and instrument requirements for repair station operation; major and minor engine repair and alterations; time and material cost estimates; pertinent Civil Air Regulations. This is a thorough study of the operation of an approved Civil Aeronautics Administration Engine Repair Station. Spring quarter. Technical, five credits, Daily 1. Shop, five credits, Daily 2-5. Related, five credits. Gilbert

Aero 103. Advanced Aircraft Structures. Adaptation of structural design to the airplane. A subject covering the determination, by graphical and analytical methods, of design loads, reactions, bending moments, and shears. Strength of materials, determination of stress concentration about fillets and boles, and methods of analysis employed by designers of aircraft. Fall quarter. Five credits. Daily 1. Staff


Aero 122. Advanced Theory of Flight. A study of the field of Aeronautics including the dynamics of perfect fluids, particles, and solids. The general theory of control and stability. Flight demonstration for each student is suggested, but not required. Fall quarter. Lecture, M. W. F. 10; Lab. T. Th. 2-5. Five credits. Gilbert

Aero 123. Performance Problems of the Airplane. Study of airplane performance, selection of the type of design to be used for a given service, military or commercial. Experimental research, in a chosen field. Three credits. Winter quarter. M. W. F. 10. Staff

Aero 124. Aerial Transportation. Study of national and international air lines. Economic and legal factors involved in air transport. Three credits. Winter quarter. Time arranged. Staff

Aero 125. Air Transport Control. A study of management and operation of airports and air traffic control. Three credits. Spring quarter. Time arranged. Staff

Aero 130. Aeronautics Seminar. Current topics in production methods, cost, design, supply and organization of interest to engineers. Two credits. Spring quarter. Time arranged. Staff

Pilot Training Ground School

Aero 35. Aeronautical Ground School (primary) Civil Air Regulations and General Service and Operation of Aircraft. Civil Air Regulations are the laws relating to aviation and are prescribed material required by the Civil Aero-
nautics Administration for private pilot certification. General Service and Operation of Aircraft is the study of theory of flight; construction, inspection, and care of aircraft and aircraft engines. A minimum of 24 class hours must be spent on Civil Air Regulations, and a minimum of 18 class hours must be spent on General Service and Operation of Aircraft. Fall or Winter quarters. Four credits. Time arranged.

Aero 36. Aeronautical Ground School (primary) Meteorology and Navigation. The work in Navigation and Meteorology is prescribed material required by the Civil Aeronautics Administration for private pilot certification. Navigation is the study of maps, wind drift, aircraft instruments, radius of action, and other navigation problems. Meteorology is the study of weather, weather maps, structure of the atmosphere, air masses, clouds, forecasting and weather reports. A minimum of 30 class hours must be spent on Navigation, and a minimum of 30 class hours must be spent on Meteorology. Fall or Winter quarters. Five credits. Time arranged.


Automotive

E. C. Jeppesen, Associate Professor; S. R. Ebert, Assistant Professor; LeRoy France,* Antone B. Kemp, Oliver Lucherini, Clyde Hurst, Bert V. Allen, Instructors.

This department offers work in automotive mechanics, auto body and paint reconditioning, diesel, forging, refrigeration and air conditioning, acetylene and electric welding. It provides general courses in Industrial Arts and specialized courses in Trades and Industries. The general industrial arts courses open to any student are Auto 51, 52, 53, 61, 62, 81, 82, 83, 84, 91, 92, 93, and 161. The remaining courses are in the nature of specialized technical training to be taken in the order as indicated in the course description.

The Automotive Department is located in the center of the Trades and Industries building, and occupies a floor space of approximately 11,000 square feet. It is fully equipped with the latest tools and shop equipment in automotive repairing, auto electrics and carburetion, auto body and paint reconditioning, forging, acetylene and electric welding. The department can accommodate approximately 200 students.

The Bachelor of Science Degree may be taken in Automotive Technology or Welding Technology. A major in these fields prepares a student as an automotive technician or as a welding technician who can better interpret the designs of the engineer and direct the work of the repairman. This major also prepares a student for work as a shop foreman, shop superintendent or as a trade instructor. Students wishing to better prepare themselves for graduate study at other institutions in automotive, diesel, welding, or closely allied fields of engineering, may do so by substituting certain prescribed courses during their junior and senior years.

*On leave.
## CURRICULUM IN AUTOMOTIVE TECHNOLOGY

Degree: Bachelor of Science in Automotive Technology.

### Freshman

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### For major in Welding Technology

Substituted Auto 41 to 46 for Auto 1 to 6, and Auto 41a to 46a for Auto 1a to 6a.

### Description of Courses

The following courses (listing Technical, Shop, and Related) offer respectively, the technical instruction, shop practice, and closely related information for the particular trade. Trade Math. W. W. 6, 7, 8; Trade Problems, Auto 48, 49, 50; or Trade English; Eng. 17, 18, 19; and Trade Drawing, M. W. 91, 92, 93, are offered as the related courses for the two year terminal certificate.

**Auto 1, 1a. Steering Correction.** (Technical, Shop, and Related.) Training in the construction, operation, and repair of the parts of the automobile chassis. The units covered are axles, wheels, control linkage, wheel suspension, steering gears, wheel alignment, wheel balancing, frame straightening, and brakes. Modern methods of repair. Fall quarter. Technical, five credits; Daily 9; Shop, five credits; Daily 10-1; Related, five credits. *Lucherini*

**Auto 2, 2a. Automotive Engines.** (Technical, Shop, and Related.) Training in the construction, operation, and repair of the modern automobile engine. The units of this course include cylinder blocks, piston assemblies, crankshaft assemblies, valve assemblies, cooling and lubricating systems. Modern methods of repair. Winter quarter. Technical, five credits; Daily 9; Shop, five credits; Daily 10-1; Related, five credits. *Lucherini*


**Auto 4, 4a. Fuel Systems.** (Technical, Shop, and Related.) Training in the construction, operation and repair of gasoline tanks, fuel systems, carburetors, manifolds, controls, and special devices such as superchargers, governors, and auto diesel engine fuel systems. Modern methods of repair. Fall quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits. *Lucherini*
Auto 5, 5a. Auto Electrics. (Technical, Shop, and Related.) Training in the construction, operation, and repair of the electric systems used on the modern automobile. The units in this course include the battery, lighting systems, ignition systems, starting and generating systems. Modern methods of repair. Winter quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Auto 6, 6a. Motor Tune-up. (Technical, Shop, and Related.) This work correlates the work covered on engines, carburetion and electrics. Tests for troubles will be made with modern tune-up equipment and these troubles remedied by trade accepted methods. Spring quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Auto 12, 12a. Fender Reconditioning. (Technical, Shop, and Related.) Training in the roughing out, shrinking, leading, buffing, sanding, and metal finishing of fenders. Fundamental principles and practice of oxy-acetylene welding which prepares the student to do the light welding necessary in auto body repairing. Fall quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Auto 13, 13a. Body Reconditioning. (Technical, Shop, and Related.) Training in the major auto body repairs and replacement of body parts. Units include the checking and alignment of the automobile body, repair and replacement of damaged body panels such as the dash, cowl, trunk, rocker, floor, side, top and door panels; also door and cowl ventilator regulators, door and seat adjusters, and windshield wiper mechanisms. Attention will also be given to the cutting, grinding, and replacing of auto body glass. Winter quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Auto 15, 15a. Automotive Trimming and Refinishing. (Technical, Shop, and Related.) Training in the repair and replacement of all auto body trim, the preparation of body metal for the various kinds of finishes, and the application of these finishes. Units covered will include repair and replacement of floor coverings, door and rear quarter trim, head lining, cowl pads, seat cushions, windlace and accessories. Practice also will be given in metal preparation, priming, surfacing, application of color, and in spotting, striping, and graining. Spring quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Auto 21, 21a. Stationary Diesel Engines. (Technical, Shop, and Related.) Training in the construction, operation, and maintenance of stationary Diesel engines. This course covers two-stroke cycle and four-stroke cycle stationary engines and accessories of the farm and auxiliary types. Fall quarter. Technical, five credits, Daily 9. Shop, five credits, Daily 10-1. Related, five credits.


Auto 31, 31a. Domestic Refrigerators. (Technical, Shop, and Related.) Training in the construction, operation, servicing and repair of domestic refrigerators. The units include compression cycle, hermetic compression cycle, and absorption refrigerators; automatic controls; cabinets; electric motors; and refrigerator servicing and repair. Fall quarter. Technical, five credits, Daily 9. Shop, five credits, Daily 10-1. Related, five credits.

Auto 32, 32a. Commercial Refrigerators. (Technical, Shop, and Related.) Training in design, construction, operation, and servicing and repair of commercial refrigerators. The units include refrigeration calculations and heat loads, cabinets and mechanisms, refrigerants, technical characteristics, and
Air Conditioning. (Technical, Shop, and Related.) Training in the design, construction, operation, servicing and repair of air conditioning units. The units include temperature control; humidity control; air movements and circulation; air filtering, cleaning, and purification; formulae; air conditioning equipment; air conditioned structures; and servicing and repair. Spring quarter. Technical, five credits, Daily 9. Shop, five credits, Daily 10-1. Related, five credits.

Acetylene Steel Welding. (Technical, Shop, and Related.) Training in fusion welding and cutting of mild steel by means of oxy-acetylene welding equipment. Various techniques and welding positions are studied and practiced, and the A. S. M. E. standard tensile test is made on samples welded in flat position. Included in this course is a careful study of the equipment and safety factors involved. Fall quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Acetylene Cast-Iron Welding. (Technical, Shop, and Related.) Training in fusion welding, bronze welding, and cutting of cast iron and malleable castings with oxy-acetylene welding equipment. Special problems in the preheating of castings are introduced. Also some attention is given to welding of heavy steel. A. S. M. E. standard tensile tests are made on steel specimens welded in the horizontal position. Winter quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Acetylene Aluminum Welding. (Technical, Shop, and Related.) Training in the welding of aluminum, duraluminum, chrome-molybdenum, inconel, stainless steel, miscellaneous alloys and non-ferrous metals with the oxy-acetylene welding equipment. Some attention is also given to gas welding, hard surfacing and flame hardening. A. S. M. E. standard tensile tests are made on steel specimens welded in the vertical and overhead position. Spring quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Electric Steel Welding. (Technical, Shop, and Related.) Training in fusion welding of mild steel by means of electric-arc welding equipment. Various techniques and welding positions are studied and practiced, and the A. S. M. E. standard tensile test is made on samples welded in flat position. Included in this course is a careful study of the equipment, and safety factors involved. Fall quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Electric Cast-Iron Welding. (Technical, Shop, and Related.) Training in fusion welding, bronze welding of cast-iron and malleable castings with electric-arc welding equipment. Special problems in preheating of castings and welding of heavy steel. A. S. M. E. standard tensile tests are made on steel specimens welded in the horizontal position. Winter quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Electric Aluminum Welding. (Technical, Shop, and Related.) Training in the welding of aluminum, duraluminum, chrome-molybdenum, inconel, stainless steel, miscellaneous alloys and non-ferrous metals with the electric-arc welding equipment. Some attention is also given pipe welding and surfacing. A. S. M. E. standard tensile tests are made on steel specimens welded in the vertical and overhead positions. Spring quarter. Technical, five credits. Daily 9; Shop, five credits. Daily 10-1; Related, five credits.

Trade Problems. Trade orientation, labor problems, and human relations affecting trade training students and apprentices. Two credits each quarter. Fall, Winter, and Spring. T. Th. 8.

Automobile Chassis. Principles and practice in the construction, operation, and servicing of the modern automobile chassis. The units of the course include axles, wheel suspension, steering gears, frames, springs, universals, drive shafts, and brakes. Open to any college student. Three credits. Fall, Lecture, T. Th. 2; Lab., T. Th. 3-5.

Automobile Power Plants. Principles and practice in the construction, operation, and servicing of the modern automobile power plant. The
units of the course include cylinder block assemblies, piston assemblies, crankshaft assemblies, valve assemblies, clutches, transmissions, overdrives; fuel, cooling and lubricating systems. Open to any college student. Three credits. Winter, Lecture, T. Th. 2; Lab., T. Th. 3-5.

Auto 53. Automobile Electricity. (Prerequisite, Auto 52.) Principles and practice in the construction, operation, and servicing of the electrical systems used on the modern automobile. The units to be covered include starting, generating, lighting, ignition, and special accessory systems. Three credits. Spring, Lecture, T. Th. 2; Lab., T. Th. 3-5.

Auto 61. Body and Fender Repair. Principles and practice in the fundamentals of fender and body repairing, including work in metal finishing, light welding, door and body alignment. Open to any college student. Three credits. Fall, Lecture, T. Th. 2; Lab., T. Th. 3-5.


Auto 81, 82, 83. Forge Practice. Training in the fundamental operations of forging such as shaping, bending, drilling, hardening, tempering, and forge welding. This course will prepare the student to do successfully the forging jobs in repair shops, construction camps, and industrial maintenance shops. This training is necessary for all acetylene and electric welders and other metal workers entering present-day industries. Open to all students in agriculture, engineering, industrial arts, and trades and industries. Five credits each course. Part of these courses may be taken any one quarter: 81a, first two, or 81b, first three credits; and 81c, last three, or 81d, last two credits of the course. Fall, Winter, and Spring. Daily 2-5.

Auto 84. Ornamental Iron Work. Designing and making of iron furnishings, fences, gates, grilles, jardinieres, sign brackets, etc. Prerequisites, Auto 81b. Two credits. Spring, T. Th. F. 11-1.

Auto 90. Acetylene Welding. Principles and practice in the fundamentals of oxy-acetylene welding and cutting. A general course open to any college student. Three credits. Fall, Winter, or Spring. Lecture, T. Th. 2; Lab., T. Th. 3-5.

Auto 92. Aero Welding. (Prerequisite, Auto 91.) Principles and practice in welding steel and alloy steel tubing as practiced in aircraft construction and repair. Three credits. Winter. Lecture, T. Th. 2; Lab., T. Th. 3-5.

Auto 93. Advanced Aero Welding. (Prerequisite, Auto 92.) Principles and practice in welding aluminum, duraluminum, chrome-molybdenum, inconel, stainless steel, and other alloys used in the manufacture and repair of aircraft. Three credits. Spring. Lecture, T. Th. 2; Lab., T. Th. 3-5.

Auto 151. Carburetion. (Prerequisite, Auto 52 or its equivalent.) Advanced technical training in fuels and carburetion as applied to the modern automobile. Units covered will include fuel pumps, carburetors, manifolds, and controls. Also principles of combustion, compression and exhaust gas analysis. Three credits. Fall. Lecture, M. W. 2; Lab., M. W. 3-5.

Auto 152. Motors and Generators. (Prerequisite, Auto 53 or its equivalent) Advanced technical training in the principles, construction, operation and repair of the automobile starting motor, generator, and their controlling devices. Three credits. Winter, Lecture, M. W. 2; Lab., M. W. 3-5.

Auto 153. Magneto. (Prerequisite, Auto 53 or its equivalent.) Advanced technical training in the principles, construction, operation, and repair of low and high tension magneto and their accessories. Three credits. Spring, Lecture, M. W. 2; Lab., M. W. 3-5.


Auto 191. Electric Welding. (Prerequisite, Auto 91.) Principles and practice in the use of the latest types of electric-arc welding equipment. Safety
measures and methods used in arc-welding of steels, cast iron, and non-ferrous metals. Instruction in oxy-acetylene welding of cast iron and torch cutting of steel will be offered. Three credits. Winter. Lecture, M. W. 2; Lab., M. W. 8-6.

Auto 192. Resistance Welding. (Prerequisite, Auto 191.) Principles and practice in the welding of iron, steel and non-ferrous metals by means of spot welding and other types of resistance welding equipment. Some attention will be given to the welding of bronze, aluminum, and other non-ferrous metals, and hard surfacing with acetylene and electric equipment. Three credits. Kemp Spring. Lecture, M. W. 2; Lab., M. W. 3-5.

Metalwork and Mechanical Drawing
Aaron Newey, Professor Emeritus; Frederick Preaor, Associate Professor.

This department offers work in mechanical drawing, blue print reading, machine shop practice, sheet metal work, ornamental metal work, and metals and heat treatment. It also provides the necessary course for Bachelor of Science Degree in Trades and Industries with a major in Metalwork, a terminal short course in the machine shop trade, and service courses that may be used toward satisfying the teacher training curriculum in Industrial Arts. Also, the service courses in Shop Drawing are provided for the Industrial Division.

The degree course in Metalwork offers to young men with special aptitudes in mechanical work, drafting, and mathematics, an excellent opportunity to train for machine-work and tool-making, and in addition, it lays a foundation for entering such allied fields as machine designers, master mechanics, trade teachers, and airplane mechanics or designers and several branches of engineering.

The shop courses in the department give good training for students who are studying for a career where mechanical work is needed. Students preparing for engineering, electrical work, auto mechanics, aviation, ignition, tractor work, farm machinery, and those interested in model building and experimenting will find these courses suited to their needs.

The department has a floor space of 5,080 square feet. The machine shop is equipped with the following machine tools: 25 lathes, 3 milling machines, 3 shapers, 1 planer, 2 universal cutter grinders, 1 surface grinder, 1 power hacksaw, 5 drill presses, 5 tool grinders and 1 Doall machine.

The shops are well supplied with machinist hand tools such as vises, bench tools, reamers, gauges, twist drills, taps, dies, micrometers, and other measuring tools and also facilities and tools to handle ornamental metalwork, and sheet metal.

The department also has a heat treating laboratory equipped with 5 Electric Furnaces, tensile test machine, hardness testing machine and polishing equipment for preparing metal specimens.

CURRICULUM IN METALWORK
Degree: Bachelor of Science in Metals.

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### Description of Courses

All courses in Metalwork are open to vocational students.

Any five credit course in Machine work may be completed by taking part of the course during one quarter and the other part during a later quarter. The letters A, B, C, D attached to any five-credit course number indicates, respectively, two credits, three credits, three credits, and two credits. A and B indicate the first part of the course and C and D the latter part. For an example: 51a, 2 credits; 51b, 3 credits; 51c, 3 credits; 51d, 2 credits.

**MW 40. Sheet Metal.** This course gives practice in the fundamental operations and tool processes of sheet metal work. Articles are made from black iron, galvanized iron, and bright tin that give practice in pattern developing, cutting, soldering, seams, riveting, wiring, etc. The training needed for teaching sheet metal work in high schools will receive due consideration during the course. Two credits. Spring, M. W. F. 10-12.

**MW 41. Art Metalwork.** This course consists of laboratory work in casting, embossing, sinking, engraving, etching and metal spinning operations. The work is done in copper, brass, pewter, and aluminum on projects designed for utility and artistic merit. Prerequisites, Art 4 or 37, Machine Work 51b. Senior college students may register for MW 141. Two credits. Spring, M. W. F. 10-12.

**MW 50. Metals and Heat Treatment.** The course is a study of the physical properties, composition, constituents, and heat treatment of metals used in industry. The metals and heat treatment studies will include cast iron, wrought iron, plain carbon steel, alloy steels, brasses, bronzes, aluminum alloys and magnesium alloys. Three credits. Any quarter. Time arranged.

**MW 51, 52, 53. Machine Practice.** These courses give training in the use of hand tools and in bench work, together with elementary training on the drill press, lathe, shaper, planer, and milling machine. Tools and machine parts are made that give practice in the operations that are essential in machine shop work. Included are assignments of reading on machine work subjects, and the application of mathematics to machine work. Five credits each course. Fall, Winter, and Spring, Daily 10-1 and 2-5.

**NOTE:** Two and three credit courses in Machine Practice are scheduled each quarter. See Time Schedule Bulletin.


**MW 181, 182, 183. Tool and Die Making.** Introducing tool making as a factor in modern production methods. The making of taps, reamers, cutters, and precision gauges for interchangeability of parts. Milling machine work on plain and spiral gears and designing and making of worm and worm wheel. Surface grinding and an introduction to press cutting and forming operations which is a foremost method of modern production. Prerequisites, MW 51, 52, 53. Five credits each course, Fall, Winter, and Spring. Daily 2-5.
MECHANICAL DRAWING

The drafting laboratory, with a floor space of 1,600 square feet, is well lighted and equipped to handle a class of 40 students at individual drafting tables. Modern equipment such as Universal drafting machines, the different printing machines, and printing processes are made available to the students.

The mechanical drawing classes M. W. 91, 92, 93, are basic courses, which are offered as service courses to all departments. Special emphasis is put on the fundamentals of good shop practices used on the drawings common in industry.

MW 91, 92, 93. Shop Drawing. The use of instruments and types of lettering on template drawings and graphic solutions; standard elements and symbols which make up mechanical drawings used in industry. The theory of shape and its representation in orthographic projections, sections, auxiliary views, revolutions, and size description. Isometric drawings and the translation of orthographic into pictorial drawings. Two credits each course. MW 91, Fall, T. Th. 10-12 or 2-5, Winter, M. W. F. 10-12, MW 92, Winter, T. Th. 10-12 or 2-5, Spring, M. W. F. 10-12, MW 93, Spring, T. Th. 10-12 or 2-5. Preceptor


MW 95. Machine Drafting. Problems pertaining to machinery drives and fastenings, mechanisms of power and motion, and the design of machine parts incorporating standardized methods consistent with industry. Three credits. Fall, M. W. F. 11-1. Preceptor

MW 96. Aircraft Drawing and Blue Print Reading. Problems common to the aircraft industry are used. The special aircraft methods of representation, aircraft numbering systems, change methods, classes of prints and technical specifications are stressed. Prerequisites, MW 91, 92, 93. Three credits. M. W. F. 10-12. Preceptor

Radio

*S. R. Stock, Associate Professor; Larry S. Cole, Assistant Professor; Clayton Clark, Instructors.

The objective of the Department of Radio is to provide a thorough fundamental and technical education in the various phases of radio technology. The unusual expansion of the radio industry in the past decade has created an urgent need for large numbers of well trained, experienced technicians, operators, and maintenance men, and the facilities and programs of the department have been designed to adequately train men to meet these needs.

The Department of Radio maintains extensive contacts with industrial and governmental agencies that employ technically trained radio men, and gives employment assistance to students who have completed various phases of training.

The Radio Department has extensive laboratory space, modern equipment and a well trained staff. Among the equipment available are: radio transmitters from 25 to 1000 watts, both commercial and composite types; a large number of commercial communications receivers; a completely equipped broadcasting studio with all monitoring and recording equipment; a comprehensive stock of radio testing and measuring equipment including oscilloscopes, analyzers, chanalysts, tube testers and meters of all types, and an unusually fine stock of radio parts and tubes for instruction and experimental purposes.

There are two college programs in the Department of Radio. First, a standard four-year college course leading to a degree of Bachelor of Science in Radio Technology and second, a terminal trade and industrial course in radio service and repair.
## CURRICULUM IN RADIO

**Degree:** Bachelor of Science in Radio Technology

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### Description of Courses

Radio 1, 2 and 3 form an intensive complete Course in Radio Maintenance and Repair.

**Radio 1. Radio Circuits.** (Technical, Shop and Related.) Training covering radio electricity and circuits; use and care of radio tools and test instruments; testing for and repairing of ordinary troubles. Fifteen credits. Fall. Daily, 9-12 and 2-5.


**Radio 3. Special Radio Receivers and Equipment.** (Technical, Shop and Related.) A continuation of Radio 1 and 2 covering the circuits, adjustments and maintenance of high fidelity, all wave and F. M. receivers; sound systems and other radio equipment. Fifteen credits. Spring. Daily, 9-12 and 2-5.

**Radio 23. Radio Electricity.** A general introductory course covering fundamentals of electricity; radio reception and transmission; principles of vacuum tube detectors and amplifiers and circuit constants. Laboratory work covers soldering, wiring, use of diagrams and construction of several types of simple radio receivers. Five credits. Fall. Lecture, M. W. F. 11; Lab., T. Th. 2-5.

**Radio 24. Radio Receiver Systems.** A continuation of Radio 23, including further study of vacuum tubes; audio and radio frequency amplifiers; alternating currents and resonant circuits; superheterodyne receivers and power supplies. Lab. work includes construction of superheterodyne receivers; amplifiers and power supplies. Five credits. Winter. Lecture, M. W. F. 11; Lab., T. Th. 2-5.
Radio 31, 32, 33. International Code Practice. These three courses will train the beginner to send and receive correctly 15 to 20 words per minute. The actual speed attained will depend on individual ability. Required of all students majoring in radio. One credit each quarter. Fall, Winter, and Spring, M. W. F. 12.


Radio 84. Instruments and Measurements. A study of the principles, construction and use of modern radio testing and measuring equipment; systematic methods of diagnosis and circuit testing. Laboratory work includes practice in use of instruments and diagnosis and repair of radio receivers. Prerequisite, Radio 24. Five credits. Winter. Lectures, M. W. F. 10; Lab., T. Th. 2-5. Staff

Radio 85. Advanced Radio Service. A course in radio maintenance. It covers the testing, diagnosis, adjustment, and repair of all types of modern receivers, including specialized systems involving automatic volume and frequency control, crystal filters, noise limiters and frequency modulation. Ample laboratory practice in testing, adjustment and repair is given. Prerequisite, Radio 84. Five credits. Spring. Lecture, M. W. F. 10; Lab., T. Th. 2-5. Staff

Radio 88. Forest Service Radiophone and Telephone. This course is designed especially for students in the schools of Forestry and Radio. Proper methods of operation, installation, station procedure, and communication practice will be given. The laboratory work will be done in the field, using standard Forest Service Radio and Telephone equipment. The course will also include telephone operation, line construction, and methods of location and repairing common phone troubles. The Forest Service office at Ogden is furnishing the necessary telephone and radio equipment for the course. The Forest Service officials will conduct the final field tests. Two credits. Spring, T. Th. 2-5. Staff

Radio 89. Short Wave Receivers and Transmitters. An introductory course covering the principles of short wave receivers and transmitters for communication and broadcast service. Students will construct their own short wave receivers and transmitters and study principles of short wave radio transmitters with methods of tuning, neutralization and adjustment. To those interested, this course is adequate preparation for the government examination for amateur license. Five credits. Spring, M. W. F. 11; T. Th. 2-5. Staff

Radio 101. Practical Electricity. This course will include a study of the fundamental principles of electricity and their application in the construction of such projects as bell circuits, house wiring, electro-magnets, heating elements, motors, electric soldering irons, transformers, and other common electrical devices. Four credits. Spring. Three Lecture-labs. per week. Time arranged. Staff

Radio 120. Antennas. Fundamentals of radio antennas, radiation and wave propagation; adjustment and construction of all types of Marconi and Hertzian antennas; directional arrays; feeder lines and matching networks; antenna and field strength measurements. Four credits. Fall, M. W. F. 11; Lab., W. 2-5. Cole


Radio 125. Audio Frequency Amplification. A course covering the principles characteristics, adjustments and construction of resistance, impedance and transformer coupled audio amplifiers; audio circuit constants and measurements; Class A AB and B power amplifiers. Prerequisite, Radio 124. Four credits. Winter, M. W. F. 9; W. 2-5. Cole
Radio 126. Radio Frequency Amplification. Principles, characteristics, and
construction of R. F. voltage and power amplifiers; neutralization and adjust-
ment; modulation; introduction to ultra high frequency amplifiers and fre-
quency modulation; R. F. circuit constants. Prerequisites, Radio 80, Radio 124.
Four credits. Spring, M. W. F. 8; M. 2-5.

Radio 128. Broadcast and Commercial Transmitters. The features, charac-
teristics, operation and adjustment of modern commercial communications
equipment used in broadcast, marine, aeronautical and public service fields.
Material covered constitutes ample preparation for commercial radio operator
license examination. Prerequisites, Radio 124, Radio 126. Four credits. Winter,
M. W. F. 11; M. 2-5.

Radio 129. Sound, Recording and Studio Technique. Course covers prin-
ciples of acoustics; microphone and speaker characteristics; theater and outdoor
sound systems; instantaneous and wax recording; motion picture recording and
reproduction; specialized audio amplifiers. Laboratory work consists of actual
recording and studio arrangements, sound system installations and acoustic
measurements. Prerequisites, Radio 124, Radio 125. Four credits. Spring, M.
W. F. 11; W. 2-5.

Radio 150. Advanced Laboratory Work. Advanced radio laboratory work
in construction of equipment and communication units; measurements and
laboratory technique. For junior and senior students majoring in Radio. Any
quarter. Time and credit arranged.

Woodwork and Building Construction

D. A. Swenson, Associate Professor; Joseph Coulam, Assistant Professor.

The Woodwork Department occupies the center and south wing of the
second floor of the Mechanic Arts Building, containing 6,418 square feet of
floor space. In this space is housed machine room, bench room, stock room,
finishing room, classroom, and office.

The shops are well lighted, are completely equipped with woodworking
machines, and can accommodate approximately thirty-five students at one
time.

This department offers work in joinery and millwork, building construction,
estimating and contracting; pattern making, wood turning, wood finishing, house
decorating, home mechanics, and cabinet work. It provides the necessary courses
for the Bachelor of Science degree in Woodwork and Building Construction; it
provides for a two-year terminal short course in Carpentry and Building
Construction; and service courses that may be used toward satisfying the cur-
riculum in Industrial Arts.

CURRICULUM IN WOODWORK AND BUILDING
CONSTRUCTION

Degree: Bachelor of Science in Woodwork and Building Construction.

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Credits          | 18 18 18
## SCHOOL OF ENGINEERING

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**Courses WW 61, 62, 63, 74, and WW 171, 172, 173 may be completed by taking part of the course during one quarter and the other part during a later quarter. The letters A, B, C, D are used to designate the subdivisions of these courses. Thus, A represents the first two credits of the course; B represents the first three credits; C, the last three credits and D, the last two credits. The three-hour courses are offered 9-12 M. W. F. each quarter, and the two-hour courses are offered 9-12 T. Th. each quarter.**

### WW 6, 7, 8. Shop Problems

This course deals with shop mathematics, placing emphasis upon the use of fractions, decimals, the metric system, percentage, ratio and proportion, showing their application in the solution of shop problems. Applied Geometry problems developed for the shop students. Areas, volumes, speed relations, cutting speeds, thread and gear calculations, flooring, roofing, board measure, the use of the steel square, estimating and cost of materials, all find application. Three credits. Each quarter.

### WW 60. Elements of Plumbing

This course includes plumbing specifications, codes, layouts, installations, inspections, cutting and fitting pipe, and repairs. Two credits. Winter, Lect., T. Th. 9; Lab., Th. 10.

### WW 61, 62, 63. Joinery and Millwork

These courses give the necessary basic training for students preparing to enter various fields of the woodworking trades, and also for students who wish a knowledge of woodwork for their own needs. They include a thorough study in the proper use, care and sharpening of hand tools, machine processes, safety measures, machine operation, care and repair of machines, and sharpening of machine cutters. Assigned reading and application of mathematics to woodwork problems are integral parts of the course. Problems are also assigned in the form of projects in bench work and wood turning to give practice in the fundamentals of wood construction. Two, three or five credits. Each quarter. Daily 2-5.

### WW 64, 65, 66. Building Construction

A study of laying out and building homes, farm buildings, garages, etc., particularly placing stress on carpenter work. Subjects include concrete forming, framing, roof framing, roofing, scaffolding, siding, exterior and interior trim, window and door work. Special attention is given to trade construction methods. Prerequisites, WW 61, 62, and 63. Five credits. Each quarter. Daily 2-5.

### WW 68. House Wiring

This course is designed to meet the needs of students in building construction courses. Work covers the national electrical code and, where available, the local codes in effect in Utah communities. Training in this course prepares the student to choose materials, design the circuit, and properly install a complete system for electrical heat, light, and power in a home or small public building. Three credits. Winter, T. Th. 8. 3 hour lab. arranged.

### WW 72. Concrete and Clay Products

A study is made of the composition of concrete for various purposes, the use and placement of reinforcing agents; waterproofing, coloring, and stone imitations, etc. Composition of bricks, tile, etc., and their strength and thermal conductivity are also studied. A number of projects built in the laboratory during the course. Two credits. Winter, Lect., T. 8; Lab., Th. 8-10. Extra lab. section to be arranged.
WW 73. Materials of Industry. A study is made of wood and wood products, commercial veneered panels, roof coverings, wall boards, insulations, siding, composition panelings, glass products and other non-metal materials used in the building trades. Three credits. Spring, M. W. F. 12. Coulam

WW 74. Home Service Course. Instruction will be given in upkeep and general repairs in the home, such as frequently are needed on electrical, plumbing, and other home equipment. Woodwork repairs and furniture refinishing as well as fitting of window blinds and screens, calcimining and wallpaper cleaning will receive attention. Minor repairs to heating, ventilating and refrigeration equipment will also be considered. The course, designed for solving home problems and also for teaching this type of work in Junior and Senior high schools, is open to men and women students. Prerequisite, High School Physics or equivalent. Each quarter, two to six credits. Time arranged.

WW 160, 160b. Pattern Making. Making of simple patterns to illustrate suitable materials for the work, care and precision necessary in pattern work, also construction of patterns for use in the foundry, teaching the principles of shrinkage, etc. Prerequisite, WW 61, WW 160, two credits. Fall, T. Th. 9-12. WW 160b, three credits. Winter, M. W. F. 9-12. Swenson

WW 161, 162, 163. Building Construction. Estimating and Contracting. A course in construction and design for homes, farm buildings and apartments, considering porch work, stairways, dormers, special roofs, insulation and other special constructions, specification writing, cost estimating, contracting methods, and drawing of special sections and details. Also a study of allowable loads. Problems in actual bidding on sets of plans are worked out by the student. (Continuous.) Prerequisites, 9 hours Drafting and WW 61, 62, 63. Five credits each quarter*. Where the laboratory requirements have already been met, only three hours will be given for the lecture in 161. Fall, Lect. M. W. F. 11. Winter and Spring Lect., M. W. F. 3; Lab., T. Th. 2-5. Coulam

WW 170. Wood Finishing and House Decorating. This course considers fine wood finishing such as natural finishes, French polishing, hand polishes, stains, paints, enamels, gun work, interior and exterior wood finishes, plaster paints, brick stains, stucco paints, etc. Wall papers and calcimines are also considered. The student will be required to do practice work in each type of finishing. Two credits. Spring, T. Th. 9-12.

WW 171, 172, 173. Cabinet Work. The work done in these courses consists of a study in the design and construction of furniture and cabinets. It includes a study of the woods suitable for furniture and cabinet building, wood turning, inlaying, wood carving, and types of wood finishing. Projects are built in fine furniture and cabinets, which include inlaying, overlaying and carving. Prerequisites, WW 61, 62, and 63. Two, three or five credits. Each quarter, Daily 2-5.

WW 174. Art Woodwork. This course deals with the decorative means that craftsmen employ to make their products appeal to the artistic taste. The following phases will be treated by lecture and demonstration and supplementary laboratory work. Art turning, chip carving, hand saw shaping, scrolling, twisted turning, inlaying and overlaying. Consideration will also be given to decorative effects obtained by two-tone staining, bright colored stains and lacquers, burning, and fine polishing. Prerequisites, WW 61 and 62a. Three credits. Fall, T. Th. 9-12.

*If the lab. has been satisfied for WW 161, 3 hours credit will be allowed for the lecture.

III. Industrial Education Program

E. C. Jeppsen, Associate Professor; William E. Mortimer, Assistant Professor; Donald B. Greenwood, Instructor.

The Industrial Education Department offers a program of professional teacher training in Industrial Arts and Trade and Industrial Education. This program continues throughout the regular school year and into the summer session. Students can complete their undergraduate work and receive a Bachelor of Science degree in Industrial Education by majoring in Industrial Arts or Trade and Industrial Education.

*On leave.
Industrial Arts

The curriculum in Industrial Arts is designed to meet state certification requirements for the General Secondary and Class A Industrial Arts certificates and is composed of courses in Arts and Sciences, Education, Industrial Arts Technical, Industrial Arts Professional, and basic shop skills. The Arts and Science courses are described in the departments of the School of Arts and Sciences. The Education courses are provided jointly by the School of Education and the Industrial Division of the School of Engineering, Industries and Trades. The general education courses are described in the departments of the School of Education and the descriptions of the technical and professional Industrial Arts courses follow the curriculum in Industrial Arts. The courses in the basic shop skills are described in the departments of the Industrial Division, namely: Aeronautics, Automotive, Metalwork and Mechanical Drawing, Radio, Woodwork, and Industrial Education. The curriculum for the Bachelor of Science Degree in Industrial Arts is as follows:

**CURRICULUM IN INDUSTRIAL ARTS**

Degree: Bachelor of Science in Industrial Education

Major: Industrial Arts

Minor: To be selected

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Credits: F = Fall, W = Winter, S = Spring
Industrial Arts—Technical Courses

I. E. 42. Plastics. To acquaint students with the new and important group of plastics materials now being produced and to teach them the fundamental operations used in working these materials. Students will complete projects in hand and machine work that apply to the Industrial Arts program. Two credits. Spring, M. W. F. 8-10.

I. E. 113. Driver Education and Traffic Safety. This course is designed to acquaint prospective teachers and others with available instructional materials in the field of driver education and the latest methods of presenting such materials in the classroom and on the road. Supervision during practice will be arranged for each student. Three credits. Spring, Lecture, T. Th. 8; Lab., Arranged.

I. E. 123. Industrial Arts Laboratory. To teach prospective junior high school industrial arts instructors the application of the skills and knowledge they have acquired in their basic shop courses. Each prospective instructor will construct projects that are suited to the work recommended by the State Department of Education for junior high schools. They will also prepare the necessary lesson plans and teaching aids that will supplement and aid teachers in carrying out the program. Prerequisites: Basic shop courses in Wood, Metal, Electricity, and Crafts. Six credits. Winter, Lecture, M. W. F. 2; Lab., Daily 3-5.

Industrial Arts—Professional Courses

I. E. 102. Instructional Aids. Instruction in the purpose, types, sources, preparation and proper use of audio and visual aids for classroom instruction. The units of this course include samples, models, charts, graphs, slides, still film, movie film, sound film, stereoptican projection, recording, sound systems and other aids suitable for classroom and auditorium use. Three credits. Winter, M. W. F. 9.

I. E. 107. Principles and Objectives of Industrial Arts. To acquaint students with the general philosophy and purposes of Industrial Arts education, and to enable them to understand and appreciate its place in the modern educational program. Students will study and compare the general principles and objectives of Industrial Arts education with those of general education and vocational education. Also, they will correlate the objectives of each State Industrial Arts course with those of the Industrial Arts program. Three credits. Fall, M. W. F. 8.

I. E. 109. Course of Study Building in Industrial Arts. To teach students to prepare and use a course of study consisting of the outline, analysis, progress chart, lesson plans, instruction sheets, references, tests, and instructional schedule. Each student will complete this work for one industrial arts unit of instruction. Three credits. When taught as an extension class and additional work is required, this course may be given for five credits. Winter, M. W. F. 8.

I. E. 110. Shop Organization and Management. To teach students to organize and manage an Industrial Arts shop of the unit, general, or comprehensive type. Each student will prepare for one type of shop, a complete plan of organization and management dealing with the necessary equipment, materials, supplies, methods of purchasing, financial control and problems of shop arrangement. Three credits. Spring. Time arranged.

I. E. 112. Observation and Directed Teaching. To give students the opportunity of observation and directed teaching in Industrial Arts shops near the College. Each student will, under close supervision, practice teaching various Industrial Arts courses recommended by the state in both junior and senior high schools. Eight credits. Application for this course should be made one quarter in advance. Spring. Time arranged.
I. E. 121. Instructor Training (Methods). To teach students the latest methods and techniques of teaching as applied to individual and group instruction. Each student will have the opportunity of using these different methods in presenting lessons before the class. Three credits. Fall, M. W. F. 10.

Jeppsen

CURRICULUM IN TRADE AND INDUSTRIAL EDUCATION

Degree: Bachelor of Science in Industrial Education
Major: Trade and Industrial Education.
Minor: To be selected.

This curriculum is designed especially for instructors teaching in Vocational Industrial Programs. Candidates for this degree must show evidence of six years successful trade experience and five years successful teaching experience. The trade and teaching experience must be evaluated and approved by a committee consisting of the Director and Department Heads in the Industrial Division. The requirements for this degree are as follows:

A. 60 credit hours trade training or equivalent
B. 40 credit hours general group requirements
C. 30 credit hours education and psychology
D. 20 credit hours technician training
E. 36 credit hours recommended electives

186 Total credit hours
SCHOOL OF FOREST, RANGE AND WILDLIFE MANAGEMENT

LEWIS M. TURNER, Dean.

Forest Management ........................................ 194
Range Management ........................................ 197
Wildlife Management ...................................... 200
General Information

The fortunate geographical location of this School of Forest, Range and Wildlife Management, the opportunity for self help for qualified men and great need for better management of the forest, range and game, provide an excellent combination of circumstances and opportunities for proper training in the management of wild lands and their resources.

Naturally-vegetated lands in Utah comprise more than 90 per cent of the total state area. The Cache National Forest, within two miles of school, the Bear River Migratory Bird Refuge within 40 miles, vast areas of range lands providing both grazing and soil conservation problems, all offer unlimited study projects and opportunities for demonstration. Herds of elk and deer come within a short distance of the campus during the winter.

The Wildlife Management department is greatly enhanced through the establishment of two research agencies of the U. S. Fish and Wildlife Service on the campus, which are housed in the forestry building. One of the ten Federal Wildlife Research Units, a cooperative project with the college, the Utah Fish and Game Department, the U. S. Fish and Wildlife Service, and the American Wildlife Institute are located here under the leadership of Dr. J. B. Low. A regional research office of the Fisheries Division is also located here under Dr. Stillwell Wright. The two agencies assist to some extent in class and laboratory instruction, and aid in directing the research of graduate students. Graduate fellowships in Wildlife Management have been made available through the Wildlife Research Unit.

The comparative newness of the fields of forestry, range, wildlife, soil conservation and forest recreation, and the unquestioned need for their correlation in permanent wild land management, present excellent opportunities for those desiring to participate in these fields of public service. The purpose stressed is the handling of wild lands so that they may be of continuing benefit for present and future generations of citizens.

RECOMMENDED ENTRANCE QUALIFICATIONS

Students entering the School of Forest, Range and Wildlife Management will find the work much easier if they have had high school algebra, physics, typing, biology and geometry. If the student, for example, has had high school algebra, he will be required to make up that deficiency in college. It is, therefore, recommended that these basic mathematics and science courses be taken in high school.

COURSES OF STUDY

The curriculum of this school is designed to train men for private, government or state work in (1) Forest Management, (2) Range Management, and (3) Wildlife Management. The Range majors may choose, in the senior year, to specialize either in Range Management or Soil Conservation. Special instruction is offered in the fields of Forest Radio and Forest Recreation.

FIVE YEAR COURSE RECOMMENDED

The efficient management of wild land resources in all its phases requires a broad fundamental knowledge of many of the sciences and arts. For this reason, many of the forest schools throughout the nation have recognized that the usual four-year program of study is inadequate to give the student sufficient training in both the basic sciences and in the technical subjects of the chosen field. It is therefore recommended that a five-year course of study be pursued.

The first two years of the regular four-year course of study are practically the same in all departments, with specialization in a major field beginning in the third or junior year. This program gives the student only a minimum of basic training and cultural foundation. The five-year program would provide for an additional year devoted principally to general training in the arts and sciences. This would furnish a better foundation for the technical studies of the last two years and a superior cultural background which is so necessary for advancement in public service fields.
SUMMER CAMP

The School of Forest, Range and Wildlife Management has purchased and leased 3,000 acres of forest and range land approximately 25 miles from the campus within the Cache National Forest, where summer camp facilities have been established. Field instruction is required for graduation in addition to the regular 12 quarters of course work. Also, at least one season of field experience with a recognized conservation agency is expected of all students.

Field instruction in Forestry, Range and Wildlife courses is given at summer camp, including: Forestry 96, Forestry 97, Range 98, Wildlife 99, for a total of 12 hours. Attendance at this camp is required between the sophomore and junior years and is prerequisite to the technical courses of the junior and senior years. The summer camp opens on the second Monday, following the close of the spring quarter and continues for a period of eleven weeks. Twelve credits are allowed for the complete course. A charge of $20 is made for tuition, and board is provided on a cost basis. All junior college students planning on entering this school at the beginning of their junior year, should make arrangements to attend the camp during the summer following their graduation from the junior college.

The Summer Camp has been suspended for the duration of the war but will be resumed in the summer of 1946.

FIELD TRIPS

A schedule of field trips is planned each year as a part of the regular class instruction. Courses requiring attendance on field trips are so designated under course descriptions. Charges for transportation are levied at the rate of one cent per mile. The total expense on this account varies between $1 and $5 during any one quarter.

In addition to the trips scheduled for the individual courses, each major department conducts an extensive field trip in the spring quarter, covering all available branches of the major field. This trip is required of all seniors prior to graduation. The trip for wildlife majors is usually scheduled over the first week of May, and Range majors over the second week. The trip for Forestry majors is more extensive and covers a period of ten days or two weeks just prior to the end of the spring quarter. Some modification of previous travel schedules is obligatory during the war.

SCHOLARSHIP

A high standard of scholarship must be maintained by the student interested in Forestry or the associated fields because of the technical nature of the work and the high professional standards and the character of the Civil Service examinations that are required for federal service.

MINORS

Students other than Forest, Range and Wildlife Management School majors may complete a minor in any of the three departments of the School upon completion of 18 credit hours approved by the head of the department concerned.

GENERAL REQUIREMENTS

The following general requirements must be met by all students by graduating from the School of Forest, Range and Wildlife Management.

A. One full term of summer camp.
B. At least 192 hours (quarter hours) exclusive of summer camp, basic military science, and physical education.
C. All courses prescribed under the study program of the chosen major.
D. All of the following general requirements:
   1. English and Speech, 16 hrs., of which at least 3 must be Speech.
   2. Social Science—8 hrs.
   3. Military Science or Physical Education—6 quarters.
UTAH STATE AGRICULTURAL COLLEGE

BASIC COURSES

Required of all students majoring in the School of Forest, Range and Wildlife Management.

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*Students presenting 1½ units of High School Algebra are not required to take Math. 34.
†Students in Wildlife Management may elect Zoo. 3 in place of Agron. 6 in the Fall quarter and elect Zoo. 4 in the Winter quarter. Agron. 6 may be taken in the Fall quarter of the Senior year.

Forest Management

LEWIS M. TURNER, J. W. FLOYD, T. W. DANIEL, Professors; D. W. BENSEND, Associate Professor; ———, Assistant Professor.

Upon completion of the curriculum prescribed below, students are granted the degree of Bachelor of Science, major in Forest Management. Within the near future the degree of Master of Science in Forest Management will be granted upon completion of an arranged course of study.

The course is designed to give the student a comprehensive background of all branches of forestry, including growing, protecting, harvesting, and utilizing of timber crops. Related uses of forest land for grazing, wildlife and recreation are also presented to train the student properly in multiple use land management.

Electives: Electives necessary to fill out the program of the Sophomore year should be chosen with the object of improving the students' cultural as well as professional background. History 17, Radio 88, and Forestry 95 are recommended. In the Junior and Senior years electives should be chosen with the object of broadening a specific field of study. Forestry 116 and 125 are recommended. Courses selected must meet the approval of the major professor.

STUDY PROGRAM

Freshman and Sophomore Years—See Basic Courses.
1. General Forestry. A general survey of the profession of forestry, range management, soil conservation, and wildlife management; character of the work; and relation of multiple uses of wild land to the welfare of the state and the nation. Three credits. Fall, M. W. F. 10.

10. Forest and Range Conservation. An introduction to conservation problems designed to acquaint students with the nature and extent of the organic resources of the United States and methods of conserving them. Forestry, soil conservation, range management and wildlife aspects are considered. Not open to majors in the School of Forestry. Three credits. Winter, M. W. F. 9.

41. Utah Trees. Characteristics and importance of the native and introduced conifers and broad-leaved trees of Utah. Not open to majors in the School of Forestry. Two lectures, one lab. Three credits. Spring, time arranged.

95. Winter Woodcraft. Lectures and field trips are designed to train the student in the proper way of living in the wilderness. Proper clothing, camping accessories, tents and emergency shelters, food lists and emergency foods, fires, nature lore, snow characteristics and weather signs are the principal topics studied. The student will use skis and snowshoes. Prerequisite: ability to ski. The student must furnish ski boots and suitable outdoor clothing. Two credits. Winter. Lecture, F. 12; Field trips, S. 8-12.

96. Surveying Practice. Practical problems involving the use of the level, transit and plane table. Road location, elementary curves and placement of stake slopes. Twelve days. Three credits. Summer camp.

97. Forest Practice. Practical work in forest mapping, timber cruising, timber marking; inventories and growth of immature timber stands; stem analysis, taper measurements, sample plots. Twelve days. Three credits. Summer camp.

101. Forest Survey I. Identification and range of the major commercial species of the United States. Elementary principles of silviculture and forest management. Not open to students in Forest Management. Three credits. Fall, T. Th. 8; Lab., Th. 2-5.

102. Forest Survey II. Forest improvement and recreation; log scaling, timber cruising, study of growth and yield; logging, milling, and seasoning of lumber. Some attention will also be given to identification, properties and uses of the major commercial woods of the United States and to the major forest products. Not open to students in Forest Management. Three credits. Winter, T. Th. 8; Lab., Th. 2-5.


112. Dendrology. Identification and distribution of the more important forest trees of the United States. Three credits. Fall, M. W. 10; Lab., W. F. 2-4.


115. Silviculture II. Silvicultural systems used in securing natural reproduction of forests and their applications to the important species and forest types in the United States. Prerequisite, For. 114. Three credits. Spring, T. Th. 10; Lab., W. 2-5.

116. Seeding and Planting. Seed collection, extraction and cleaning methods; germination testing; storage of forest tree seeds. Practical experience in field planting and nursery work. Two credits. Spring, T. 8; Lab., S. 8-12.


122. Forest Finance. Financial aspects of forest management, such as land, growing stock and stumpage valuation, forest taxation, and damage appraisal. Prerequisite, For. 121. Four credits. Winter, M. W. F. 10; Lab., W. 2-5.

125. Logging. Methods of handling timber from tree to mill in the various forest regions. Three credits. Field trips arranged. Spring, M. W. F. 11.


137. Improvements and Recreation. Roads, trails and structures necessary in forest management. Recreational use of forests and the classification and development of areas suitable for this purpose. Four credits. Spring, M. W. F. 10.


145. Forest Problems. Individual study and research upon a selected forestry problem approved by the instructor. One to three credits. Any quarter. Time arranged.

201, 202, 203. Advanced Forestry Seminar. Review and discussion of more advanced current literature. Designed for students following a five-year program. Two credits each quarter. Fall, Winter, and Spring. Time arranged.
Range Management

L. A. Stoddart, Professor; A. D. Smith, Assistant Professors.

Upon completion of the course prescribed below, students are granted the degree of Bachelor of Science, major in range management.

The course in range management acquaints the student with methods of maintaining the production of native lands and methods of managing range livestock. An opportunity is given to take special instruction in soil conservation with the election of certain courses during the senior year. Studies in soil conservation acquaint the student with problems of soil erosion and methods of conserving water and managing lands, especially lands under native vegetation, in such a manner that productivity will be maintained.

The degree of Master of Science in range management will be granted upon completion of an arranged course of study. A period of one to two years and a total of forty-five residence credits, at least ten being individual research, are required. Students desiring this advanced work should obtain permission from the major professor at least twelve months before the degree is to be granted, at which time a program of research and study will be outlined. The choice of the research problem and of the specialization of study rests largely with the student. Adequate facilities are available to allow emphasis upon soil conservation, animal husbandry, botany, wildlife, economics, or agronomy. A bachelor's degree in range management or a related subject is a prerequisite for graduate work in this field.

Two graduate assistantships are granted annually. One, a research assistantship, is granted by the Utah Experiment Station and pays $600 for a 12-month period. The second is a teaching assistantship, paying $400 for a 10-month period.

Graduation Requirements

The degree of Bachelor of Science in range management will be granted upon completion of the following:

1. The freshman and sophomore programs as prescribed for the School of Forestry (page 194).

2. Ten hours of animal husbandry exclusive of poultry courses for students majoring in range management as specified below.

3. The junior study program and one of the two senior programs listed below.

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<th>STUDY PROGRAM</th>
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</thead>
<tbody>
<tr>
<td>Junior</td>
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<td>Name of Course</td>
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<tr>
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<td>Plant Physiology</td>
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<td>Range Management</td>
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<tr>
<td>General Wildlife Management</td>
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<tr>
<td>Forbs and Browse, Poisonous Plants</td>
</tr>
<tr>
<td>Public Land Administration</td>
</tr>
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<td>Fire Protection</td>
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</table>

*On leave.
The following courses are suggested for students wishing to minor in range management. These requirements are subject to change upon approval of the department head.

**Range 126: Plant Ecology**
- **Course Description:** An analysis of habitat factors as they influence plant growth and distribution. Attention will be given to plant succession and competition and to detailed methods of studying and mapping vegetation.
- **Prerequisite:** Botany 30.
- **Credit:** Five credits.
- **Terms:** Fall, M. T. Th. F. 11; Lab., M. 2-5; Field trips arranged.

**Range 160: Principles of Managing Range Lands**
- **Course Description:** A general course designed to give students not majoring in the field a knowledge of how to evaluate, increase and perpetuate range. Attention is given to various grazing systems, livestock handling practices, and to the physiological effects of grazing upon plant life. Range maintenance and revegetation problems of various western range areas will be discussed, and students become acquainted with the important native forage plants and poisonous plants of each. Field trips and laboratory work on range plants.
- **Prerequisite:** Botany 22 or Botany 12.
- **Credit:** Three lectures, two labs. Five credits.
- **Terms:** Spring, T. Th. 11; T. Th. 2-5. One lecture arranged.

**Range 176: Range Forage Plants**
- **Course Description:** Field work in range management involving training in making range reconnaissance, estimating utilization, and conducting technical range research. In addition time will be devoted to range improvement and management planning. Twelve days at forestry summer camp.
- **Credit:** Three credits.

**Range 181: Range Economics**
- **Course Description:** Principles of Managing Range Lands
- **Course Description:** Range Economics
- **Credit:** Three hours.

**Range 192, 193, 194: Range Seminar**
- **Course Description:** Range Seminar
- **Credit:** One lecture arranged.

**Minor—Range Management**
utilization of range forage; and range livestock management as it affects range vegetation. Five credits. Field trips arranged. Prerequisite, Botany 30. Fall, M. T. W. 10; Lab., Th. 2-5.

164. Advanced Range. Technical problems in field methods, grazing reconnaissance, management plans, range planting, range administration, and systems of grazing for range improvement. This course is especially designed to train men in range research and technical problems of administration. Prerequisites, Range 162 and Range 126. Three credits. Winter, M. W. F. 9. Staff

167. Soil Conservation. This course is designed to give the student a broad background of the field of soil and water conservation with special reference to range and forest land. It includes history of, causes of, and methods of controlling erosion. Should be preceded or accompanied by Agronomy 6 and Range 126. Four credits. Fall, M. W. F. 10; Lab., S. 9-12. Field trips arranged.

176. Range Forage Plants. Native forage plants, including poisonous plants, their identification, distribution, ecology, and economic value. Not open to range management majors. Prerequisite, Botany 30. Four credits. Winter, M. W. 1; Lab., M. W. 2-5. Staff

177. Forbs and Browse. A study of important non-grasseous forage plants, including identification, region of growth, habitat, and forage value. Prerequisite, Botany 30. Two credits. Fall, W. 1; Lab., W. 2-5.

179. Poisonous Plants. A study of important poisonous plants, including general methods of livestock handling and range management practices to avoid losses from poisonous plants. Included are identification, region of growth, habitat, poisoning symptoms, remedies, and control measures. Prerequisite, Botany 30. One lecture, one lab. Two credits. Spring, W. 1; Lab., W. 2-5.

181. Range Economics. A study of the development of the range industry, cost of production, range land utilization, organization of cattle and sheep industry, and value of range forage. Prerequisite, Range 162. Three credits. Fall, M. T. Th. 12.

182, 282. Vegetation Influences. A course in which the influences of vegetation on the hydrological cycle are studied. Emphasis will be given influences of vegetation on percolation of ground waters, runoff, soil erosion and the regimen of streams. Graduate credit available with additional assignment. Three credits. Winter, M. T. Th. 12.

192, 193, 194. Range Seminar. Current range management research and problems, including a systematic review of the field of range management and related fields. This includes annual three-day range trip. Prerequisite, Range 162. One credit each quarter. Fall, T. Th. 9; Winter, T. Th. 10; Spring, T. Th. 10.

195. Range Problems. Individual study and research upon a selected range problem approved by the instructor. Open to range management majors or to others by approval of instructor. One to three credits. Time arranged.

200. Thesis. Original research and study on a problem in range management or soil conservation, must be followed by the preparation of a formal thesis. This course is open only to graduate students upon approval of the major professor. One to 15 credits. Any quarter, time arranged.

205. Graduate Seminar. Current scientific papers in range management, soil conservation, and related subjects, and an analysis of range problems in foreign countries. Not open to undergraduate students. One credit. Fall and Winter, time arranged.

206. Research Methods. A study of research methods in range management and related subjects. A review of scientific literature in the field and an analysis of results. Open to undergraduate students only upon approval. Two credits. Winter, T. Th. 9.

Wildlife Management

G. H. Kelker, Associate Professor; J. B. Low, Associate Professor and Biologist, U.S. Fish and Wildlife Service; Stillman Wright, Aquatic Biologist, U.S. Fish and Wildlife Service.

Upon completion of the basic courses and the upper division requirements as outlined in the study program, students are granted the degree of Bachelor of Science major in Wildlife Management. The basic courses of the freshman and sophomore years are tabulated on page 194. Prospective Wildlife Management majors should elect Zoology 3 and 4 in the sophomore year.

All juniors and seniors are expected to go on the annual four day spring field trip. The cost approximates thirty dollars.

Through the cooperation of the Fish and Wildlife Service of the U.S. Department of Interior, the Utah State Fish and Game Department, the American Wildlife Institute, and the College, one of the ten federally sponsored Wildlife Research Units was established at Utah State College in 1935.

Through the establishment of this Wildlife Research Unit, funds are available for two to four graduate research fellowships paying $500 to $720 per year for students engaged in work in this field. Candidates for fellowships will be chosen from applicants who have a bachelor's degree in Biology, Forestry, or Agriculture from a college of recognized standing, and who submit formal application with transcript of college credits and references on or before May 1.

STUDY PROGRAM

Freshman and Sophomore Years — See Basic Courses, Forest, Range and Wildlife Management, page 194.

### Junior

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<tr>
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<td>Management of Game Birds</td>
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<td>English</td>
<td>111 4</td>
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</table>

99. Wildlife Practice. Lake and stream surveys and mapping for improvement purposes and for restocking; the use of census methods for big game, game birds, and rodents; cover mapping; preparation of animal skins; and study of deer and elk ranges. Twelve days. Three credits. Summer camp. Kelker


153, 253. Management of Big Game. Life histories, distribution, numerical variation, enemies, and plans for management of native big game animals. Prerequisite, Wildlife 145. Three lectures, one laboratory period, and field trips on Saturday. Assessment $2.00. A term paper required of those doing graduate work. Five credits. Winter, M. W. F. 11; Lab. W. 2-5; 1 hour arranged.


155. Economic Wildlife. General importance of the wildlife resource; natural history, economic values and control methods for rodents and predators; identification of skulls and skins; with a brief evaluation of hawks and reptiles. The course is particularly adapted for students in forestry, range, and agriculture. Three credits. Winter, W. F. 8; F. 2-5. 

157, 158, 159. Wildlife Seminar. Discussion of current developments in Wildlife management. One quarter is given to comprehensive testing of subject matter. One credit each quarter. Fall, T. Th. 9; Winter, T. Th. 11; Spring, T. Th. 9. 

160. Animal Ecology. Distribution and behavior of animals as affected by various environmental factors. Special attention to inter-relationships of biotic communities. Additional assignment to graduate students. Three credits. Fall, M. 10; Lab., M. Th. 2-5.


163. Marsh Management. Marshland restoration and maintenance for waterfowl and aquatic fur-bearers; economic returns from marshlands; ecological plant succession and methods of restoration and maintenance of plant food and cover; management of public and private waterfowl shooting grounds; evaluation and control of predation and sickness; water level manipulation and controls for year-round operations of marshlands. Lectures, laboratory, and field trips. Field trip assessment, $4.00. Prerequisite, Wildlife 154. Three credits. Spring, M. W. 9; W. 2-5.

165, 265. Fish Culture. Principles of lake and stream improvement; food habits of game fishes, propagation methods, and common fish diseases. Prerequisites, Zoo. 155, Zoo. 138. Two credits. Spring, F. 9; Th. 2-5.

169. Field and Laboratory Technic. Study of the scientific method; training in field observation and note taking; data analysis, hair, feather, bone, and seed identification. Field trips $1.00. Three credits. Winter, M. 8; Lab., T. Th. 2-5.

170. Wildlife Problems. Individual study and research upon a selected wildlife problem approved by the instructor. One to three credits. Any quarter. Time arranged.


270. Wildlife Thesis. (Graduate students.) Individual research is assigned to qualified students in problems of Wildlife Management. Five to ten credits per quarter. Any quarter. Time arranged.
SCHOOL OF HOME ECONOMICS
ETHelyn O. Greaves, Dean.

Curricula in Home Economics ..................... 204
Child Development and Parent Education ........... 216
Clothing, Textiles and Related Arts ............... 217
Foods and Nutrition ................................. 219
  Dietetics ........................................ 219
  Institutional Management ......................... 219
Household Administration .......................... 221

Additional Majors:
  Home Economics Education ....................... 212
  Two-Year Terminal Course ......................... 216
### Curricula in Home Economics

**CHILD DEVELOPMENT AND PARENT EDUCATION**

#### Freshman Year

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>F. &amp; N. 5 (1)</td>
<td>Principles of Nutrition</td>
<td>3</td>
<td>F W S</td>
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<td>F. &amp; N. 9 (1)</td>
<td>Meal Preparation and Serving</td>
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<td>(See page 44)</td>
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<td>(See pages 43-44)</td>
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<td>Physical Education</td>
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#### Sophomore Year

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<td>H. Ad. 65 (1)</td>
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<td>F. &amp; N. 35</td>
<td>Nutrition and Growth of Children</td>
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<td>C.T. &amp; R.A. 55</td>
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<td>(See pages 43-44)</td>
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(1) Suggested for the required 15 hours of general Home Economics credit.

(2) Prerequisite courses: Art 1, 2; Music 4, 5; Psychology 3.

(3) Group requirement recommendations: Physiology 4; Bacteriology 1; Physics 1; Sociology 70; Geology 1.

(4) Elective recommendations: Speech 18; Child Development 176; Woodwork 74; Sociology 160.

*Alternate years.*
### Junior Year

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### Senior Year

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*Alternate years.*

(1) Suggested for required 15 hours of general Home Economics credit.

(4) Elective recommendations: Speech 18; Child Development 176; Woodwork 74; Sociology 160.
# CLOTHING, TEXTILES AND RELATED ARTS

## Freshman Year

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## Sophomore Year

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(1) Suggested for required 15 hours of general Home Economics credit.
(2) Group requirement recommendations: Physiology 4; Bacteriology 1, 2; Psychology 3; Economics 51; Chemistry 10, 11, 12; Sociology 70; Speech.
(3) Elective recommendations: Clothing, Textiles and Related Art 33, 168, 175; History 4; Household Administration 65; Physics 1; Landscape Architecture 3; Economics 145.
### Junior Year

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(3) Elective recommendations: Clothing, Textiles and Related Art 33, 168, 175; History 4; Household Administration 65; Physics 1; Landscape Architecture 3; Economics 145.
# FOODS AND NUTRITION*

*(Including A. D. A. Requirements for Student Dietitian Training)*

## Freshman Year

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(1) Suggested for required 15 hours of general Home Economics credit.
(2) Prerequisite course: Psychology 3.
(3) Group requirement recommendations: Physiology 4; Bacteriology 1, 2; Speech 1; Economics 51; Sociology 70.
(4) Elective recommendations: Mathematics 34 or 35; C.T. & R.A. 25; Child Development 70; Agricultural Economics 62; Speech 81; Physics 1; Typewriting, Journalism 12, 112, 113, 114; Education 121, 122b; Bacteriology 120; Physiology 145, 150; Foods and Nutrition 144, 146, 160; Household Administration 150.

*This program may be adjusted to meet the needs of students preparing for research, journalism or for the teaching profession.*
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(1) Suggested for required 15 hours of general Home Economics credit.

(4) Elective recommendations: Mathematics 34 or 35; C.T. & R.A. 25; Child Development 70; Agricultural Economics 62; Speech 81; Physics 1; Typewriting; Journalism 12, 112, 113, 114; Education 121, 122b; Bacteriology 120; Physiology 145, 150; Foods and Nutrition 144, 146, 160; Household Administration 150.

*Alternate years.*
### Household Administration

#### Freshman Year

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#### Sophomore Year

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1. Group requirement recommendations: Physiology 4; Psychology 3; Sociology 70; Speech 1; History 4 or 14; Political Science 1; Art 1, 2; Music 1, 80, 81.
2. Elective recommendations: Landscape Architecture 3; Zoology 111; Sociology 160; Art 114; Foods and Nutrition 35; English 24; Music 38; Journalism 3, 15; Economics 149; Household Administration 50.
### Junior Year

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(2) Elective recommendations: Landscape Architecture 3; Zoology 111; Sociology 160; Art 114; Foods and Nutrition 35; English 24; Music 38; Journalism 3, 15; Economics 145; Household Administration 50.

*Alternate years.*
HOME ECONOMICS EDUCATION

The professional program outlined below prepares graduates for the teaching profession in the field of home and family living. It certifies graduates to teach any and all phases of home economics in the schools of Utah including high schools having George Dean programs (vocational homemaking).

It is important that students register with the instructor for Education 121 and 122 two quarters before they plan to do their student teaching. This provides the amount of time necessary to obtain the cooperation of the number of schools to provide enough student teaching assignments for those registering in these two courses.

**Freshman Year**

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**Home Economics**
- C. D. 70
- C.T. & R.A. 9
- F. & N. 5
- H. E. 10

**Group Requirements**
- (See page 44)

**Other College Requirements**
- (See pages 43-44)

**Electives (3)**
- Physical Education
- Electives

**Prerequisite courses:** Art 1, 2; Chemistry 10, 11, 12; Psychology 3.

**Group requirement recommendations:** Bacteriology 1 and 2; Economics 51 or Agricultural Economics 62; English 24; Music 1; Physiology 4; Speech 1; History, Literature, Political Science, Sociology.

**Elective recommendations:** Students are advised to consider:
- Developing a field of interest into a teaching minor, i.e., Art, Commerce; English; Music; Physical Education; Sociology; Child Development; Clothing, Textiles and Related Art; Foods and Nutrition.
- Developing understanding of cultural, social, and economic problems through Art, Economics, Music, History, Political Science, Sociology.
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</table>

(1) Prerequisite courses: Art 1, 2; Chemistry 10, 11, 12; Psychology 3.

(2) Group requirement recommendations: Bacteriology 1 and 2; Economics 51 or Agricultural Economics 62; English 24; Music 1; Physiology 4; Speech 1; History, Literature, Political Science, Sociology.

(3) Elective recommendations: Students are advised to consider:

a. Developing a field of interest into a teaching minor, i. e., Art, Commerce; English; Music; Physical Education; Social Science; Child Development; Clothing, Textiles and Related Art; Foods and Nutrition.

b. Developing understanding of cultural, social, and economic problems through Art, Economics, Music, History, Political Science, Sociology.
HOME ECONOMICS—Continued
Senior Year

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(3) Elective recommendations: Students are advised to consider:

a. Developing a field of interest into a teaching minor, i.e., Art, Commerce; English; Music; Physical Education; Social Science; Child Development; Clothing, Textiles and Related Art; Foods and Nutrition.
b. Developing understanding of cultural, social, and economic problems through Art, Economics, Music, History, Political Science, Sociology.

METHODS IN TEACHING HOME ECONOMICS. (See Education 120.)

PROBLEMS IN TEACHING HOME ECONOMICS. (See Education 121.)

PRACTICE TEACHING IN HOME ECONOMICS. (See Education 122a.)

PRACTICE TEACHING IN HOME ECONOMICS FOR DIETICIANS. (See Education 122b.)

SPECIAL PROBLEMS IN HOME ECONOMICS EDUCATION. (See Education 199.)
General Information

All courses offered in the School of Home Economics are intended primarily to prepare young women for the fundamentally important function of homemaking.

Admission to the School of Home Economics requires completion of 15 high school units of work including the following:

- English .......................................................... Three Units
- Algebra .......................................................... One Unit
- Social Science .................................................. One Unit
- Natural Science (requiring laboratory work) .................. One Unit
- Elected (from the above groups and Modern Languages) .... Three Units

It is realized that the function of homemaking is many-sided, and also that it may extend beyond the immediate environs of home. For this reason courses are planned which are intended to prepare young women to carry the knowledge and skills of expert homemaking into various institutions of complex modern society. Accordingly, students may elect majors in the following divisions of Home Economics:

CHILD DEVELOPMENT AND PARENT EDUCATION
CLOTHING, TEXTILES AND RELATED ARTS
FOODS AND NUTRITION
HOUSEHOLD ADMINISTRATION
HOME ECONOMICS EDUCATION

The chief professional opportunities open to majors in the School of Home Economics are (1) Child Development and Parent Education: Elementary Education; Nursery Education; Education for Parenthood. (2) Foods and Nutrition: Dietetics; Research; Institutional Management; Teaching. (3) Clothing, Textiles and Related Arts: Merchandising; Teaching; Costume Design; Textile Research. (4) Household Administration: Homemaking. (5) Home Economics Education: Teaching; Homemaking.

A two-year terminal course in Home Economics subjects is offered for persons who are unable to complete a four-year course but who would profit from the pursuit of practical homemaking study.

In the first two years, students of Home Economics register for courses that will satisfy college requirements for graduation.

For the convenience of students these requirements are here summarized:

**JUNIOR COLLEGE REQUIREMENTS**

1. Biological Science ................................................. 8-12 quarter hours
2. Exact Science ..................................................... 8-12 “ “
3. Language and Arts ............................................... 8-12 “ “
4. Social Science ..................................................... 8-12 “ “

Total ................................................................. 32-48 quarter hours

5. Six quarters of Physical Education.
6. Sophomore Composition (English 10 or 11).

All freshmen registering in the School of Home Economics and students transferring from junior colleges who do not have credit for a similar course are required to register for Home Economics Survey 10. This course deals with the orientation of the student into Home Economics and her guidance in the choice of a vocation related to this field. Open to all College women. One credit. Fall, W. 1.

*Staff*
TWO-YEAR TERMINAL COURSE IN HOME ECONOMICS

A two-year terminal course in home economics is offered for students who, for any reason, do not expect to complete any of the four-year majors in the homemaking group. The course is so planned, however, that students may, without undue delay, complete later the work required for a four-year course.

While the course offers a broad foundation in homemaking, it also makes possible a concentration of effort on phases of home economics that will prepare the student for employment in specific fields.

REQUIREMENTS FOR TWO-YEAR TERMINAL COURSE

1. Complete a major of 30 hours in one or more closely related departments of the School of Home Economics.

2. Complete a minor of 15 hours related to or basic to the major field—not necessarily in the School of Home Economics.

3. Twenty-four hours in basic groups:
   a. Language ................................ 9 quarter credit hours.
   b. Exact Science ............................ 5 " " "
   c. Biological Science ..................... 5 " " "
   d. Social Science ............................ 5 " " "

4. Electives—21 quarter credit hours.

5. Physical Education—6 quarter credit hours.

Child Development and Parent Education

ESTHER L. SKEELS, Associate Professor; EDNA PAGE, Assistant Professor in Charge of Food for Nursery School; ORAL PUGMIRE, Instructor; ANN BURNS, Assistant.

(For Curriculum see page 204)

Students who select Child Development and Parent Education as a major are required to complete the following courses: English 24, Nutrition 35, Clothing, Textiles and Related Arts 55; Psychology 110, Zoology 111, Child Development 60, 70, 138, 175 and 190.

Students who select Child Development as a minor should complete Child Development 60, 70, and 175, Nutrition 35 and Psychology 110.

Child Development majors are required to take 15 hours of general Home Economics credit other than those required on the major.

Many students majoring in Child Development also qualify for the elementary teacher's certificate. This may not, however, constitute a minor. Minors must be selected from the subject matter fields.

60. Child Guidance. This course should be helpful to homemakers, preschool and elementary school teachers, social workers, and any others interested in working with young children. One 9, one 10, one 11, one 12, one 2, and one 3 o'clock hour must be free during the week to allow for scheduling three laboratory hours for observation in the nursery school. Students who can free all or all but one of these hours may proceed with registration; others should consult with the instructor before registering. A fee of $2 is required to cover the cost of meals in the nursery school. Open to students of sophomore standing or above. Five credits. Fall and Winter each year, also alternate Spring quarters. M. T. W. Th. 1.

60a. Child Guidance. Required of all home economics transfer students who have had only two- or three-credit hours in child study. One credit will be earned by three hours of observation weekly in the nursery school (see statement regarding this in Child Development 60); the other hour will
be earned by meeting with the regular class in C. D. 60 on Thursday of each week. A laboratory fee of $2 is required for meals in the nursery school. Two credits. Fall and Winter each year, also Spring quarter alternate years. Th. 1.

70. The Health of the Family. A study of the anatomy and physiology of the reproductive system, preparation for motherhood, and the physical care of mother and child from the prenatal period to the end of the first year of the child's life. Three credits. Fall, M. W. Th. 1. Winter, Sec. 1, M. W. F. 11; Sec. 2, M. W. Th. 1. Spring, Sec. 1, M. W. F. 11; Sec. 2, M. W. Th. 1.

138. Survey in Child Guidance. A study of the history of the child development movement, present agencies and programs operating to further the welfare of children; nursery school administration. Open to Child Development majors only. Five credits. Offered in alternate years only to the combined group of juniors and seniors; offered next in 1947. Spring, Daily 8.

140. Special Problems in Child Development. Open to qualified students majoring in Child Development, upon consultation with instructor. Any quarter. Time and credit arranged.

175. Practice Teaching in the Nursery School. An opportunity to apply the principles of child guidance in the nursery school. Open only to Child Development majors and minors. Prerequisite, Child Development 60. Five to seven credits. Any quarter. Time arranged.

176. Advanced Practice Teaching in the Nursery School. A continuation of Child Development 175; an additional opportunity to work with young children. Open only to Child Development majors. Prerequisite, Child Development 175. Four to six credits. Any quarter. Time arranged.

190. Seminar in Child Development. Discussions and reports of research in Child Development. Open only to child Development majors. One credit. Spring, T. 5.

208. Research in Child Development. Any quarter. Time and credit arranged.

Clothing, Textiles, and Related Arts

BERTHA F. JOHNSON, Associate Professor; MRS. CLARICE ENGSTROM, Assistant Professor; LILLIAN BREHM, Instructor.

(For Curriculum see page 206)

Students who elect Clothing, Textiles, and Related Arts as their major are required to complete the following courses: Clothing 9, 20, 25, 105, 115, 125, 140, 165, 170, 180, and 191; Art 1, 2, 3, 32, 114, 123. Clothing, Textiles, and Related Arts majors may elect to minor in Art, Education, Merchandising, Business, Foods and Nutrition, Child Development, Social Sciences, Physical Education, English, etc.

Clothing, Textiles, and Related Arts majors to be graduated from the School of Home Economics must have 15 hours of Home Economics besides the major, which should include representative subjects in Foods and Nutrition, Child Development and Household Administration.

Those wishing to minor in Clothing, Textiles, and Related Arts consult with the department head to determine required courses.

5. Dress and Personality. Open to all College girls desiring assistance in planning and selecting campus clothes to suit personality and income. No construction. Two credits. Spring, W. F. 11.

9. Clothing for the College Girl. Course designed to assist the College girl in selecting and adapting her clothes in terms of campus activities and personal expressiveness. Construction of one new garment. Open to all College Girls. Three credits. Fall, Spring, Sec. 1, M. 10; Lab., M. 11-1, W. 10-12; Sec. 2, T. 2; Lab., T. 3-5, Th. 2-4. Winter, Sec. 1, M. 2; Lab., M. 3-5, W. 2-4; Sec. 2, T. 2; Lab., T. 3-5, Th. 2-4. Outside work required.
15. Clothing Appreciation and Selection for Men. This course is organized to meet the needs of men from all schools of the college. Emphasis is placed on buying problems and the importance of choice and care in the life and appearance of men's wearing apparel. Consideration is given to the importance of dress in the business world and factors that should determine one's choice of clothing. Two credits.

20. Household Textiles. A study of textile fabrics for household and personal use and the materials from which they are made. The aim of the course is to form a basis for the intelligent purchase and use of textiles through a knowledge and understanding of the processes involved in their manufacture and an appreciation of how fiber content and construction affect their choice and care. Prerequisite, Chemistry recommended. Four credits. Fall, Winter, Spring, M. W. F. 10; Lab. F. 11-1.

25. Clothing Selection and Construction. The study and practice of the techniques and skills suitable for making and fitting articles of wearing apparel. Two garments are constructed. Careful consideration is given to the selection, color, design, and material. Pattern alteration to suit individual figures and principles used in designing simple patterns are given some attention. Prerequisites, Clothing, Textiles, and Related Arts 9, 20, and prerequisite or parallel Art 2. Three credits. Winter and Spring, M. 2; Lab., M. 3-5, W. 2-4. Outside work required.

33. Home Furnishings. The course is planned to develop skill in selection and techniques in making, remodeling, and caring for home furnishings. The laboratory will include instruction on making of draperies, curtains, lamp shades, use of sewing machine attachments, refinishing and upholstering furniture. Open to all college girls. Three credits. Fall, Winter and Spring, T. 10; Lab., T. 11-1, Th. 10-12. Outside work required.


115. Costume Design. Experience in designing dress creatively from abstract source material using the sketch method. Comprehensive study and analysis of art elements and principles as related to dress for the individual. Prerequisites for Home Economics Education, and Clothing, Textiles and Related Arts majors: Art 1 and 2; Clothing, Textiles and Related Arts 9, 20, and 25. Art and clothing to satisfy instructor for others. Three credits. Fall and Winter, T. 9; Lab., T. 10-12, Th. 9-11. Outside work required.

125. Applied Costume Design. Creative experience in dress designing by draping on the dress form. Emphasis is placed on fitting and understanding of the influence of pattern in fabric, grain, and texture on design in dress. Problems consist of making a French lining and draping two garments. Prerequisites, Clothing, Textiles, and Related Arts 9, 25, and 115. Three credits. Winter, T. 2; Lab., T. 3-5, Th. 2-4. Outside work required.

140. Decorative Textiles. A study of historic textiles from early times down to the present as a background for decoration of fabrics. Laboratory work will consist of weaving, needlecraft and various means of developing decoration for garments and household furnishings. Prerequisites, Art 1, 2, 3, and Clothing, Textiles, and Related Arts to satisfy the instructor. Three credits. Fall, T. 2; Lab., T. 3-5, Th. 2-4.

168. Advanced Textiles. This course includes a study of laces, tapestries, fur, leather, oriental rugs, printed and handwoven textiles. Two credits. Winter, M. 10-12, W. 10.

Brehm

170. Flat Pattern Designing. The basic principles which underlie the form, design and construction of patterns for various figures. Includes drafting a basic pattern and provides opportunity for further study in designing, fitting, and alteration of patterns. Prerequisites, Clothing, Textiles, and Related Arts 9, 25, and 115. Three credits. Spring, T. 9; Lab., T. 10-12, Th. 9-11. Outside work required.

Brehm

175. Textile Chemistry. A study of the physical and chemical properties of the textile fibers, laboratory and household tests used in their identification, and the application of these factors to the choice and care of the fabrics. Consideration is given to the use of the microscope, physical testing and quantitative analysis. Recommended for all majors. Prerequisites, Clothing, Textiles, and Related Arts 20; Chemistry 10, 11, and 12. Three credits. Winter, M. 2; Lab., M. 3-5, W. 2-4. Outside work required.

Engstrom

180. Family Clothing Problems. Study of problems connected with family clothing, including clothing budgets, clothing reclamation and children's clothes. Remodeling and renovation of demoded garments with emphasis upon applicable techniques and good design. Study of the selection and construction of clothing for children of all ages from the standpoint of the cost and of the child's development. Prerequisites, Clothing, Textiles, and Related Arts 9, 20, 26, 115, 165. (165 Recommended but not required of Home Economics Education majors.) Five credits. Fall and Spring, M. W. F. 2; Lab., M. W. F. 3-5. Outside work required.

Johnson

189. Special Problems. Independent study under the direction of a faculty member of a special problem in textiles or clothing in which a student has interest or needs further work to meet requirements. Open to qualified students upon consultation of department head. Any quarter. Time and credit arranged.

Johnson and Engstrom


Foods and Nutrition

ETHELYN O. GREAVES, Professor; UNA VERNILLION, ETHELYN WILCOX, Associate Professors; EDNA PAGE, KATHERINE E. MORRELL, Assistant Professors; FERN STARR, Instructor.

(For Curriculum see page 208)

The Foods and Nutrition major is preparatory training for student dietitian internships, institutional management fellowships, research, journalism or teaching. The basic required courses for all students are: Foods and Nutrition 5, 20, 21, 35, 106, 107, 141, 145, 180, 191; Chemistry 3, 4, 5, 121, 122; Bacteriology and Biochemistry 111 and 112. In addition, certain courses are required for the following fields of specialization:

Dietetic internships and institutional management fellowships: Foods and Nutrition 182, 183; Psychology 102; Education 120; Business Administration 100. Research: Foods and Nutrition 144. Journalism: Journalism 12, 112. Certification for teaching: Education 112, 113, 114, 116, 120, 121, 122, 145; Psychology 102; Physiology 114.

A Master of Science degree is offered in this field.

5. Principles of Nutrition. The relation of food to the health of the individual; factors influencing the body's nutritive requirements; problems applicable to the interest of the individual student. Three credits. Fall, M. W. F. 9. Winter, M. W. F. 8.

Starr

9. Meal Preparation and Serving. Principles of food selection, preparation, meal planning, and serving. Open to all men and women students. Three credits. Fall, T. 1; Lab., M. W. 2-5. Winter, T. 1; Lab. M. W. 11-2; Spring, T. 1; Lab., M. W. 2-5. Starr

20. Food Selection and Preparation. A study of food composition, scientific methods of food preparation and food buying problems. Two lectures and two laboratory periods with outside preparation. Prerequisite or parallel, Chemistry 3 or 10. Four credits. Fall, T. Th. 8; Lab., T. Th. 9-11. Winter, T. Th. 9; Lab., T. Th. 10-12.

21. Food Selection and Preparation. Continuation of Foods 20 with emphasis placed on meat cookery. Prerequisite or parallel, Chemistry 4 or 11. Four credits. Winter, M. W. 2; Lab., M. W. 3-5. Spring, T. Th. 9; Lab., T. Th. 10-12.


100. Quantity Food Preparation for School Lunch and Special Occasions. Designed to meet the needs of teachers of Home Economics in High School. Emphasis placed upon the planning of balanced school lunches. Instruction given in the organization, preparation and service of foods for special occasions involving large groups. Prerequisites for vocational majors, Foods 20 and 21. Others consult instructor. Three credits. Spring, T. Th. 8; Lab., M. or W. 9-12. Vermillion

106. Meals for the Family. The planning, preparation, and serving of meals for the family with consideration given to the nutritional adequacy of the meals at different levels of income. One lecture and two laboratory periods with outside preparation. Prerequisites, Foods 20 and 21, or Foods 9. Three credits. Fall and Spring, F. 11; Lab., M. W. 11-1.

107. Experimental Cookery. Development of experimental methods; their application to investigation in cookery and food preservation; acquaintance with the literature in the field; preparation of the student for independent investigations in foods. Prerequisites, Chemistry 5 or 11; Foods 20 and 21. Three credits. (Given in alternate years. Given next in 1946-47.) Staff

141. Advanced Nutrition. Application of the fundamentals of biochemistry to the nutrition of man with practice in the calculation of dietaries in health. Prerequisites, Nutrition 5 and Biochemistry 111, 112 or equivalent. Four credits. Fall, M. W. F. 8; Lab. T. 2-5. Wilcox and Page

142. Dietetics. A review of the fundamentals of chemistry and biology as applied to human nutrition with practice in the calculation of dietaries in health and in disease. Required of all Home Economics Education students. Prerequisites, Nutrition 5 and Organic Chemistry. Four credits. Fall and Spring, M. W. F. 9; Lab., Th. 2-4. Page

144. Laboratory Methods in Foods and Nutrition. Problems in foods and human nutrition including nitrogen, mineral, and vitamin determinations. Prerequisites, Bacteriology and Biochemistry 111 or permission of instructor. Two credits. Winter, T. Th. 9-12. Wilcox


146. Food Technology. A study of manufacture and preservation of food products and the influence of these processes on the physical, chemical, and nutritive values of foods. Prerequisites: Bacteriology 1 and 2, and Biochemistry 111. Three credits. Spring. Lect., T. Th. 10; Lab., T. 2-5. Greaves

160. Special Problems. Open to qualified students majoring in Foods and Nutrition upon consultation with the instructor. Any quarter. Time and credit arranged. Wilcox
180. Quantity Food Preparation. Principles of cooking applied to large quantity preparation and service; standardization of foods with reference to quality and production cost; use and operation of equipment. Food and service units used as laboratories where students assist in preparation and service of foods in large quantities. Open only to food majors who contemplate entering institutional economics. Prerequisites; Foods and Nutrition 5; Foods 20 and 21. Five credits. Fall, M. W. F. 10; Lab., T. Th. 9-12. Vermillion

182. Institutional Organization and Management. Principles of scientific management applied to institutions; emphasis on forms of business organization, employer-employee relations, keeping of accounts and inventories and general administrative problems. For majors planning to enter the field of institutional economics. Three credits. Winter, M. W. F. 10. Vermillion

183. Food Selection and Purchase for the Institution. Consideration of sources, grading, standardization, basis of selection, methods of purchases, and storage of various classes of food. A two day trip to Ogden or Salt Lake markets and institutions. Approximate cost $12. Prerequisites for majors, Foods and Nutrition 180 and 181. Others consult instructor. Three credits. Spring, M. W. 9; Lab., M. 2-5. Vermillion


201. Laboratory Methods in Foods and Nutrition. Three credits. Wilcox


210. Research for Master's Thesis. Credit arranged. Wilcox

291. Seminar. Two credits. Wilcox

Household Administration

ALMEDA P. BROWN, Professor Emeritus; ETHELWYN O. GREAVES, Professor.

(For Curriculum see page 210)

A Bachelor of Science degree in Household Administration affords the student a wide choice in the selection of courses by requiring only those basic to a cultural training for homemaking. Opportunity is offered for studying effect of social and economic forces on the home and its management.

50. Consumer Education. A study of the consumer’s problems as they relate to food, clothing and household management. Emphasis will be placed on money management in the home. Three credits. Winter, M. W. F. 11. Greaves

65. Housing Problems. A social and economic study of the types, organization, plan and equipment of modern housing and the changes brought about by inventions, scientific discoveries, educational progress and other leading developments. Consideration of present housing needs and practices affecting housing construction and home ownership. Three credits. Fall and Spring, M. W. F. 11. Staff

149. Economics of Household Consumption and Production. An economic analysis of household production; source and distribution of family income under different conditions; practice in planning budgets for specific families; and laboratory work in the scientific consideration of household standards and organization. Required of all students before residence in the Home Management House. Prerequisites, Foods 20, 21, and 106 for all Home Economics Education students; others, Foods 9 and 106. Three credits. Fall, M. W. 9; Lab., F. 9-11; Winter, M. W. 11; Lab., F. 11-1. Spring, M. W. 9; Lab., F. 9-11. Staff

150. Residence in the Home Management House. A half quarter residence in the Home Management House affording senior college and graduate women an opportunity to apply principles of scientific and practical management of actual home problems. Prerequisite, Home Economics 149 or concurrent registration. Three credits. Any quarter. Time arranged. Staff
Basic Courses ........................................... 227
R. O. T. C. Band Courses ................................. 227
Advanced Courses ........................................ 227
General Information

LIEUTENANT COLONEL BEN B. BLAIR, C.A.C., Commandant, P.M.S. and T.;

The Utah State Agricultural College, having accepted the provisions of the Act of Congress, approved July 2, 1862, is classified as a Land Grant College and is therefore obliged to offer a course in Military Science and Tactics as a part of the College curricula. The obligations to provide military instruction on land-grant institutions by the Act of July 2, 1862, are not altered by the National Defense Act of 1920 as amended.

Recognizing that preparation for the national defense is one of the important duties of citizenship, and that qualities of patriotism, loyalty, discipline, leadership, and respect for constituted authority inculcated by proper military training are valuable in the formation of character, it has been the consistent policy of the College to cooperate with the Federal Government in making the Department of Military Science and Tactics as effective as practicable.

At the request of the College authorities a senior unit of the Reserve Officers' Training Corps was authorized at this Institution by the President of the United States under the provisions of Section 33 of the Army Reorganization Act of June 4, 1920. Accordingly, the Board of Trustees has agreed to maintain a two-year basic course in Military Science and Tactics as a required subject for all qualified male students.

The primary object of establishing units of the Reserved Officers' Training Corps is to qualify students for appointment in the Officers' Reserve Corps of the United States Army. This training will also be as valuable to the student in his industrial or professional career as it would be should the nation call upon him to act as a leader in its defensive forces.

Enrollment in the Reserve Officers' Training Corps is not in any sense "conscription," nor does it convey liability to service in any component or branch of the United States Army. As its name implies, the R. O. T. C. is an instrument of training and instruction only.

Military Science Regulations

The student by registration at the Institution, obligates himself to conform to such requirements as are or may be prescribed by the College Council under the regulations of the Reserve Officers' Training Corps. These requirements, at present, are as follows: Two years of military training (six credit hours) are required of all qualified male students. By regulation of the College the basic course is normally required during the first and second years at the Institution.

In order to remain in and receive instruction at the College or to graduate finally from the College, the student must be in attendance at military classes and do satisfactory work in them.

It shall be the duty of every student of whom military training is required, to see that he is properly registered for the course and to report for instruction. Students who are required to take military training but fail to register or to report for classes will, with the approval of the President, be excluded from all classes in the College. The responsibility of complying with the regulations regarding Military Science rests entirely with the student.

No male student will be excused from the requirements in Military Science except for the following reasons:

a. Students who, upon examination by the College Medical Examiner, fail to meet the physical requirements for military service are excused from Military Science, this includes those students who have served in the armed forces of the United States and were given a medical discharge. (Par 19-a, A.R. 145-10.)
b. Students over twenty-five years of age at the time of original entrance into the College will be excused from Military Science. (Par 18-a, c-4, A. R. 145-10.)

c. Students who are not citizens of the United States and who do not intend to become citizens will not be permitted to take military training. (Par 18-a, C-4, 145-10.)

d. Students who are active in the Army, Navy, or Marine Corps of the United States, or who are commissioned officers of the National Guard or Naval Militia, or reserve officers of the Military or Naval forces of the United States, will not be permitted to enroll in the Reserve Officers' Training Corps. (Par 18-a and Par 20, C-4, A. R. 145-10.)

e. Students who have completed one, two, or three years junior R. O. T. C. in good standing may be given appropriate exemptions. (Par 47, A. R. 145-10.)

f. Special students below college grade are excused from the requirements in Military Science.

A student claiming exemption from Military Science for any of the reasons noted above will present a petition for such excuse at the time of registration. Pending the action of the petition, the student will register for the course prescribed for his class and will enter upon the work of such course.

Any student who may be excused from attendance in Military Science for any valid reason must make up the deficiency in other departments of study.

Every student registered for Military Science is required to make a uniform deposit of $5. A laboratory fee of $1 will be deducted from this deposit. The balance, less the cost of any property lost or damaged, will be refunded upon the completion of the year or upon withdrawal from the course.

Reserve Officers' Training Corps

The four years' course in the Reserve Officers' Training Corps is divided into the basic course and the advanced course.

The basic course consists of the first two years in Military Science and normally corresponds to the freshman and sophomore years. When entered upon by any student it shall, as regards such student, be a prerequisite for graduation unless he is relieved from this obligation by proper authority. Students transferring from institutions not having R.O.T.C. Units will be required to enroll.

The advanced course consists of the third and fourth year of Military Science. Entrance upon the advanced course is elective, but once entered upon, the course becomes a prerequisite for graduation, unless the student shall be honorably discharged in accordance with the provisions of Army Regulation 145-10.

Students electing Military Science as a major subject should do so at the beginning of the freshman year in order that sufficient time may be available to complete the Advanced Course. The School of Arts and Sciences offer a major in Military Science.

Uniforms and Equipment

A serviceable uniform of standard army pattern is furnished by the War Department to each student taking military training. Shoes are not furnished. Each student should provide himself with a pair of black shoes before entering the College, as they will be required immediately upon his admission.

The uniform and equipment issued for the use of a student remains the property of the United States. At the end of each year, or at such other times as students may terminate their military training, all clothing and other

*a Department Major in the School of Arts and Sciences is offered in Military Science and Tactics. Prescribed requirements are: M. S. & T. 86 hours; Mathematics 34, 46, 97, 98, 99, min. 30 hours; French, German, Portuguese or Spanish, two years; Surveying 81, 82 and 83, 8 hours; Chemistry 3, 4 and 5 or 10, 11, and 12, 15 hours; Physics 20, 21 and 22, 15 hours; Political Science 10 and 102, 8 hours; History 17 and 21, 10 hours.
supplies will be returned in a serviceable condition, not later than one week following the termination of such training. Articles which have been lost, damaged, or destroyed will be charged against the student concerned.

*Basic Course

Students in the basic course are required to pursue their courses diligently until satisfactorily completed, and to meet such requirements for the care of equipment as may be prescribed. In case of failure in any quarter, the student will be required to repeat the work during the next quarter in residence.

†Advanced Course

The advanced course is elective.

The general prerequisites for admission to the advanced courses are:

a. Completion of two years' training in the basic course in any senior unit of the Reserve Officers' Training Corps.

b. Selection for further military training by the President of the College and the Professor of Military Science and Tactics.

c. The Execution of an agreement in writing, whereby the student, in consideration of the commutation of subsistence furnished to him, agrees:

(1) To continue in the Reserve Officers' Training Corps during the remainder of his course in this College.

(2) To devote a minimum of six hours per week during this period to the military training prescribed.

(3) To pursue such courses of camp training during this period that may be prescribed by the Secretary of War.

d. The students must be registered in one of the Schools of the College while pursuing the advanced course.

e. The student must have completed Math. 34-35 and 46 or equivalent.

Each student enrolled in the advanced course will be paid commutation of subsistence at the rate of twenty-five cents per day from the beginning of the first year of the advanced course to the end of the second year of the advanced course, except while attending camp, when the student will be subsisted in kind.

Each absence without leave from enrollment to graduation will cause deductions of two days commutations.

The course of camp training is for six weeks during the summer vacation, normally following the student's completion of the first year of the advanced course. The United States furnishes uniforms, transportation to and from the camp at the rate of five cents per mile, and subsistence for students attending the training camp. Students are also paid at the rate of seventy cents per day during their attendance at camp.

R. O. T. C. Band

A military band is an element of the Reserve Officers' Training Corps, under the direction of the Band Instructor, and is governed by the rules of the Department of Military Science and Tactics. Uniforms and instruments are furnished by the War Department.

Members of the band will be selected from among those students who are registered in Military Science and who have demonstrated their ability for such selection. Tryouts for the band will be conducted under the supervision of the Band Instructor and will be held preferably during the first two weeks of each quarter. Members of the band receiving credit in Military Science will be limited to not more than sixty (60) students.

*Effective with the close of the 1942-1943 school year the R.O.T.C. program of instruction will be suspended for the duration of the war. In lieu thereof basic military training as prescribed for the Army Specialized Training Program will be given. All male students in College eligible for R.O.T.C. will be required to take this training.

†The advance course has been suspended for the duration of the war.
Students who are selected for the band will be required to take such theoretical work in Military Science as may be prescribed by the Professor of Military Science and Tactics, and sufficient practical drill to insure their making a creditable appearance in ranks.

Instruction taken by members of the band is credited as instruction in Military Science, but will not be accepted toward qualification for admission to the advanced course.

Credits

Students who satisfactorily complete the basic course receive one credit hour per quarter, which may be included in the 186 credit hours required for graduation.

Students who satisfactorily complete the advanced course receive five credit hours per quarter, which count toward the 186 credit hours required for graduation. In addition, students enrolled in the advanced course will receive three credit hours for satisfactory completion of the six weeks' course at the training camp, held during the summer, between the junior and senior years.

Students majoring in the Schools of Arts and Sciences, and Engineering may submit Advanced Military Science as a minor for graduation.

Members of the band who successfully complete the work in the various quarters receive credits as follows: First and second years, one credit per quarter in Military Science.

Courses of Instruction

Classes in Military Science will not be held at times other than as scheduled, but any student desiring extra instruction may make the necessary arrangements with the Professor of Military Science and Tactics.

BASIC COURSES

1, 2 and 3. Military Science. First year. Fall, Winter and Spring quarters. One hour credit per quarter.


Instruction as prescribed for the Army Specialized Training Program. Classes in Theory, T. 9, 10, and 11, and Lab., T. and Th. 1-2.

R.O.T.C. BAND COURSES

1B, 2B, 3B. R.O.T.C. Band. First year. One credit per quarter. T. Th. Christiansen

4B, 5B, 6B. R.O.T.C. Band. Second year. One credit per quarter. T. Th. Christiansen

ADVANCED COURSES

101, 102, 103, 104, 105 and 106. Military Science. Suspended by War Department orders for the duration of the war.
GRADUATE SCHOOL
B. L. Richards, Dénan.

Admission and Registration ...................................... 230
Master of Science Degree ........................................... 230
General Information

All graduate work in the College is administered under the direction of the Graduate School. Inquiries concerning graduate studies should be addressed directly to the Dean of the School.

Admission and Registration

Persons who have received the Bachelor's degree from accredited institutions may be accepted for registration as graduate students. Persons wishing to register as graduate students would do well to so inform the Dean of the Graduate School some weeks before the beginning of the school quarter in which they wish to register. In case the student is not a graduate of this college, a transcript of credits for all studies previously completed should be submitted. This will aid materially in getting the work of the student properly arranged when he presents himself for registration. Seniors in the College who lack not more than five credit hours for completion of all requirements for the Bachelor's degree may carry a limited amount of graduate work during their last quarter as undergraduates, provided that the total number of credit hours for which they are registered during that quarter does not exceed sixteen and provided their average grade of all work is "B" or better.

Students are admitted to graduate studies in Social Work who in addition to the degree from an accredited institution have a well balanced background of training in political science, economics, psychology, and sociology; who have not less than 30 hours in one of the four fields listed above; who have personal qualifications which give promise of fitting them for social work practice; and who are under 35 years of age. Students over 35 may be admitted whose work has been in closely related fields and who are otherwise well fitted for social work.

Students may begin training in graduate Social Work after having completed a major in economics, psychology, political science, or sociology. Students majoring in child development, physical education, or public health, who have accumulated 25 hours in one of the four social sciences listed above, may also be admitted, provided they have a fair balance in the social sciences. In addition to the technical social work courses, some rural welfare backgrounds are necessary. Training involves one year of graduate work designed to provide practical acquaintance with the methods, techniques and problems of social work. A certificate in social work is awarded to those who complete an additional 45 hours in social work on the graduate level.

All students registering as graduate students must have their registration cards signed by the Dean of the Graduate School. Graduate students are limited to 16 hours per quarter. Registration as a graduate student does not imply admission to candidacy for an advanced degree. Such admission is granted only on recommendation of a special advisory committee as explained below.

Students who have received the Bachelor's degree but wish to take further undergraduate courses without the purpose of completing requisites for a Master's degree are not required to register as graduate students. They may register with the respective Deans and are not limited in registration as are the graduate students.

Master of Science Degree

All approved courses of study in the various departments in the Graduate School lead to the Master of Science degree, which degree has for its purpose the training of the student in his special field of study and in the fundamentals of research in this field. Necessarily, the work for a Master of Science degree is highly specialized and all studies must be in the field of the major or closely related fields. The following departments offer work leading to the Master of Science degree:

Agronomy and Soils, including also Soils Chemistry (administered
GRADUATE SCHOOL

jointly with the Chemistry Department) and Soils Physics (administered jointly with the Physics Department).

Agricultural Economics
Animal Husbandry
Bacteriology
Biochemistry
Botany (Plant Taxonomy and Plant Pathology)
Chemistry
Dairy Manufacturing (Dairy Chemistry, jointly with the Chemistry Department; Dairy Bacteriology, jointly with the Bacteriology Department)
Economics
Education (Educational Administration, Industrial Education, and Physical Education)
Engineering
Geology
Departments in the School of Home Economics
Political Science
Range Management
Sociology
Physics
Wildlife Management
Zoology and Entomology

Requirements for Master of Science Degree. The procedure to be followed and the requirements to be fulfilled for the Master of Science degree are given in the following steps:

1. Acceptance for registration as graduate student: All persons wishing to register as graduate students must be accepted for such registration by the Dean of the Graduate School and each registration card must be signed by the Dean.

2. Major professor and advisory committee: The student will be assigned to a major professor whose duties shall be to advise the student in the planning and the prosecution of his course of study and research and to make arrangements for examinations. The major professor will be aided by an advisory committee consisting of himself as chairman, and at least two other members chosen from the faculty of the major department or closely related departments. The Dean of the School is ex officio member of all advisory groups.

3. Preliminary examinations: By examination of the records, of the student's previous work, and by such examinations of the student, oral or written, as they may consider advisable, the advisory committee shall satisfy themselves as to the adequacy of the student's preparation and the advisability of his pursuit of graduate work.

4. Program of study: If the advisory committee is convinced that the preparation and ability of the students are such as to give reasonable assurance of success in advanced studies, then, with him, they shall plan a program of study which will meet all requirements for the Master of Science degree. This program must include in general:

(a) At least three quarters of residence. (Four summer sessions with additional non-residence research may be accepted as fulfilling the residence requirements.) Nine credits in Correspondence and Extension work are acceptable as part of the 45 quarter hours required for the degree. Graduate work done at other accredited institutions may be accepted. The amount of such credit allowed will be determined in each case in connection with an examination of the whole proposed program of study. In general, not more than 15 quarter hours in any other institutions will be accepted.
(b) At least forty-five credit hours in courses numbered 100 or over in addition to any lower division courses (numbered below 100) which may be necessary to strengthen the undergraduate preparation.

(c) Not more than sixteen hours in any one quarter.

(d) At least ten hours, exclusive of work connected with the thesis, shall be in courses numbered 200 or above.

(e) All courses shall be in the major department or closely related fields.

(f) Research and a thesis with nine to fifteen credit hours. An alternate plan to this basic thesis requirement is provided for the Master's degree in the School of Education. This plan will vary with the training and interests of the applicant and with the objectives sought and is subject to the approval of the Dean of the Graduate School.

Any other modification of these requirements or other conditions requiring action of the Dean of the Graduate School will be considered only if they are submitted by the applicant's advisory committee as part of his whole proposed program of study.

5. Application for candidacy: Having arranged a proposed program of study and research, the student will submit his plan and make application to the Dean of the Graduate School to become a candidate for the Master of Science degree. A form for this purpose can be obtained at the Registrar's Office.

Those applicants who plan to receive the degree at the end of the Spring Quarter should submit the application not later than the first Friday in the Winter Quarter. In general, the application must be submitted prior to the completion of more than one-third of the work necessary to meet requirements for the degree. Students employed part time at the College, who expect to take two years or more to complete work for the Master's degree, should not wait until the first Friday of the Winter Quarter next preceding their graduation to make application for candidacy.

If the student's application for candidacy is approved by the Dean of the Graduate School, additional members may be added to his Advisory Committee by the Dean of the Graduate School. Notice of admission to candidacy, together with a letter of instructions, concerning the thesis form, and final examination, will be sent to the candidate by the Dean or his secretary. A form on which to make application for graduation will also be enclosed with the letter. This form calls for the payment of a fee of $10.00 covering the diploma fee and the cost of proofreading and checking the thesis and of binding two copies of the thesis.

6. Completion of the approved program of study and research: Each course given in the program must be completed with a grade of "B" or better.

A semi-final draft of the thesis should be approved by the major professor and members of the advisory committee at least one week before the final examination. The final draft may be completed after the examination. A typewritten and a carbon copy of the final draft, with the signatures showing approval by the major professor and the Dean of the Graduate School, must be submitted to the Librarian of the College. If the degree is to be received at the June Commencement, this must be done not later than the May 15 preceding commencement.

7. Final Examination: Each candidate will be given a final examination by members of his advisory committee and any other persons especially designated by the Dean of Graduate School. This examination may be oral or written or both, as his committee may decide. The examination is open to all faculty members and will be chiefly on the thesis, but may cover any fundamental knowledge required for the carrying out of the research work or necessary to the conclusions reached. Arrangements for the time and place of the examination are to be made by the major professor. He should notify the Dean of the Graduate School of the arrangements at least one week prior to the time set for the examination. A member of the Advisory Committee will be selected to act as chairman at the examination. For candidates who are to
receive the degree at the June Commencement, the date of the examination must not be later than May 20. When the examination is passed successfully, and the thesis submitted to the Librarian, the Dean of the Graduate School will present the name of the candidate to the college faculty for approval for the Master of Science degree. He will also send the candidate instruction for attendance at Commencement and any other necessary information.

Delayed Completion of the Proposed Course of Study. If the student is for any reason delayed in the completion of his proposed plan of study as offered in his application for candidacy, and is unable to complete it in the time proposed, a reasonable extension of time may be granted on the recommendation of the major professor or chairman of the advisory committee.

If the student wishes to renew his position as candidate after the lapse of a prolonged period of absence from the work, he must satisfy his major professor and advisory committee of his fitness for candidacy and make an application for renewal of his candidacy before resuming his work.

Graduation at the Close of the Summer Session. All students who satisfy the requirements for graduation by the close of the Summer Session are listed with the class of the following year and will receive their public graduation at the following Commencement. The graduation of such students, however, will be certified by proper authorities of the College as soon as their work is completed.
RESEARCH AND EXTENSION

Agricultural Experiment Station ........................................ 236
Engineering Experiment Station ........................................ 237
Extension Service .......................................................... 238
Summer Session ............................................................ 239
Correspondence Study ...................................................... 239
Branch Agricultural College ............................................ 240
The Agricultural Experiment Station, established in 1889, is a major division of the College. It is charged with the responsibility of conducting research in Utah under provisions of the Hatch, Adams, Purnell, and Bankhead-Jones Acts of Congress, and of various acts of the Utah State Legislature. Its primary objective is to conduct experiments and scientific researches that have for their purpose the establishment and maintenance of a permanent and efficient agricultural industry and the development and improvement of the rural home and rural life. The research results are prepared for dissemination in the form of bulletins and scientific articles. They form the basis for much of the work of the Agricultural Extension Service.

The staff of the Agricultural Experiment Station numbers approximately 60, many of whom are also members of the teaching faculty of the College; some of them also divide their time with the Agricultural Extension Service of the College. In addition, several employees of various bureaus of the U. S. Department of Agriculture are assigned to work on the campus and collaborate in the agricultural research program of the Station.

The main offices of the Agricultural Experiment Station, including the office of the Director, and the Division of Publications, are on the College campus, on the first floor, south wing of the Main Building. Most of the research laboratories used by the Experiment Station are also on the campus, distributed as necessary among the various College buildings.

Greenhouses are maintained for investigations in horticulture, vegetable crops, agronomy, botany, plant pathology, entomology, bacteriology and biochemistry, and range management.

Livestock husbandry investigations are conducted at the barns on the college campus, at the Branch Agricultural College, at the U. S. Forest Service Desert Range Station, and on the ranges in different parts of the state.

The Station also maintains a number of experimental farms:

- At the Dairy Experimental Farm, composed of about 100 acres of land, barns and a house, the Station, in cooperation with the United States Bureau of Dairy Industry, maintains an experimental Holstein dairy herd of about sixty pure-bred animals. Pasture investigations are also conducted here.

- The Greenville Farm, a 45-acre tract, is used for experimental work in plant breeding and other phases of crop production.

- The Davis County Farm at North Farmington is a 23-acre tract used for experimental work in horticulture and vegetable crops.

- At the Nephi Dry-Land Substation, experimental work in dry farming methods and crops is conducted. This farm is composed of 103 acres.

- The Forage Experimental Farm, a 42-acre tract located south of Logan, is used in cooperation with the U. S. Bureau of Plant Industry, Soils and Agricultural Engineering for the study of the improvement of forage plants. Here special attention is given to the development of improved plants for irrigated pastures and for range lands.

- The Horticultural Farm located in Weber County north of Ogden is a 71-acre tract purchased in 1943 for investigations in fruit production.

Besides these farms, the Station owns farm plots near the college and in Washington County and rents land for experimental purposes in various parts of the state.

Other investigations not involving the use of land are also conducted throughout the state. Among these investigations may be mentioned the soil survey work; plant disease surveys; problems of injurious insect control; problems connected with land use, agricultural marketing and farm management; studies of the social problems connected with rural living; the gathering of snow survey data, problems connected with irrigation and the surveying of range resources.
These research facilities have a three-fold importance in the institution: First, they make it possible for the teaching faculty to fortify instruction with the results of original research; second, they afford advanced students an opportunity to keep in touch with research methods and facilities; and third, they offer employment to students qualified to act as research assistants or laboratory aids. Between fifty and one hundred students thus employed are on Station payrolls each month of the school year. Several find employment in laboratories and on the experimental farms during the summer months.

Major lines of research now in progress include projects in the departments of Agricultural Economics, Agronomy and Soils, Animal Husbandry (including Dairy and Poultry Husbandry and Veterinary Science), Botany and Plant Pathology, Bacteriology and Biochemistry, Entomology, Home Economics, Horticulture, Human Nutrition, Irrigation and Drainage, Physics, Range Management, Rural Sociology and Vegetable Crops.

ENGINEERING EXPERIMENT STATION

GEORGE D. CLYDE, Director

By act of the Board of Trustees of the Utah State Agricultural College, December 2, 1918, the Utah State Engineering Experiment Station was established to serve the State in a manner broadly outlined as follows:

1. To serve those industries and utilities affecting the agricultural and rural populations of the State and to aid public officials and teachers by making engineering investigations of significance and interest to them.

2. To further the development of methods of processing and use of waste products from agriculture.

3. To develop methods of processing and making available for use the undeveloped agricultural and industrial raw materials of the State.

4. To further develop the science of Irrigation and Drainage to the end that the land and water resources of the State may be most fully utilized.

5. To stimulate a greater use of native materials in rural housing and farm structures.

6. To develop applications and uses of power equipment and to help solve problems relating to the water supply and sanitation of the farm home.

7. To develop new tillage, harvesting, and weed control equipment.

8. To develop new methods and uses of native materials in the construction of farm to market roads and highways.

9. To cooperate with the Federal government in the conducting of investigations along these and other lines of engineering in harmony with the functioning of the Land-Grant College.

10. To stimulate and elevate engineering education by developing the research spirit in faculty and students.

11. To publish and distribute through bulletins, circulars, and technical articles in periodicals the results of such studies, surveys, tests, investigations and researches as will be of greatest benefit and interest to the people of Utah.

The Engineering Experiment Station is an integral part of the School of Engineering, Industries and Trades, and the laboratory facilities and shops of the School of Engineering are available for the investigational work of the Station to extent of sums allocated for their operation and support.

The Dean of Engineering is Director of the Station, and the staff is composed of members of the teaching staff from the School of Engineering, Industries and Trades and from other departments whose work is directly related to the work of the Station and of research fellows who are pursuing graduate study and are assigned part time to work in the Station.

Station bulletins and circulars are published from time to time representing the results of research projects.
THE Extension Service stands for better farm and home management and better living with emphasis on the family sized farm. The income from farming cannot all be measured in terms of cash, part of it consists of fresh food, comfortable home and pleasant surroundings. The stability of ownership and close contact with nature develop virtues in the farm family which makes it the highest type of American citizens.

To accomplish the above objectives work is planned along the following lines:

1. To increase the net income of the farmer through more efficient production, marketing and use of capital and credit.

2. To promote better homes and a more satisfactory standard of living on the farm.

3. To develop rural leaders, through short leader training courses on both state and county levels and through individual guidance.

4. To promote the mental, social, recreational, educational and community life of rural people.

5. To help in a program that will add beauty and other living satisfactions to rural homes.

6. To implant a love and appreciation of rural life in farm boys and girls. This is accomplished largely through the program of 4-H Clubs.

7. To enlarge the vision of rural people on national and world affairs.

8. To acquaint the public with the importance of agriculture in the national life.

9. To give assistance in marketing and purchasing problems affecting agriculture.

The Extension Service works through the county and community planning committees, using their studies and recommendations as a basis for the Extension program within the county. It also works with all other existing rural organizations as a means of reaching the largest possible number of people. Individuals may receive attention, however, upon personal requests. Assistance is given to men, women, boys and girls in problems of the farms and home. Information on problems that are of common interest to groups is given in project form, and followed up progressively until satisfactory solutions are found and approved practices established. Information is also disseminated by demonstrations, lectures, film strips, motion pictures, news articles, radio, and illustrations. Materials for much of the scientific data imparted by the Extension workers are supplied by the Experiment Stations. The State Specialists work with the County Agricultural and Home Demonstration agents and leaders in assembling information and determining methods of solution to their problems. Voluntary project leaders chosen from communities are trained by specialists and county agents to assist in organizing and leading project groups.

The Extension Service cooperates with the Farm Bureau, the State Department of Agriculture, other state departments dealing with agriculture and homemaking, churches, and all agricultural commodity organizations. It also works closely with all federal agricultural agencies operating within the state. It has a special assignment by federal law, of recruiting, training and placing agricultural labor within the state.

The list of projects carried by the Utah Extension Service Staff follows: irrigation, fertilizers, crop improvement, range reseeding, land use, erosion control, farm management, weed control, rodent control, insect control, plant disease control, farm forestry, fire control, horticulture, gardens, livestock management, breeding, feeding, bull grading, production records, dairying, dairy manufacturing, wool production, poultry, animal disease and parasite control, farm buildings, farm accounting, farm machinery, marketing, foods and nutrition, clothing, home furnishings, home management, home accounts, health, electrification, landscaping, civic improvements, savings and investments, 4-H work with youth, leader training.
FOR more than thirty years the College has conducted Summer Sessions as an important part of its educational program. Since 1924, the offering has been materially enlarged and enriched and a very stimulating lecture course established. The purpose of this large educational undertaking is to bring to Logan, with its delightful summer climate and its many recreational features, a number of the leading educators of the nation, and build, in the intermountain west, a summer school of wide influence.

During the Summer Session nearly all of the departments of the College offer courses, the program being arranged to meet the particular needs of summer students. The courses offered in Education, Psychology, and related departments, make it possible for the students to meet all of the requirements for Utah certification for High Schools, Junior High Schools, and Elementary Schools. The curriculum will also meet practically all of the requirements for certification in surrounding states.

In past years the majority of summer students have been teachers in secondary and elementary schools. At the present time an increasing number of regular students are continuing on through the summer. High school graduates are also entering the college immediately rather than postpone entrance to the fall quarter. Returning service men and women are particularly interested in a regular summer program inasmuch as nearly all of them wish to complete their education as quickly as possible. The summer curriculum is being arranged to meet this trend. The intersession period is also being affected because more students want to complete a full quarter during the summer period. Consequently, practically all of the departments are offering at least part of their regular program during the summer quarter.

Graduate Credit

Summer session students are allowed six years in which to satisfy requirements for the Master of Science degree, but they may fulfill the requirement for this degree by attendance at four Summer Sessions with additional intersession attendance, or non-resident research. This makes it possible to secure this degree without giving up present teaching employment. Those who expect to register for work leading to this degree should submit their credits to the dean of the graduate school several weeks in advance of registration and indicate the subject in which they wish to major. This will make it possible to have the course of study approved at the time of registration.

CORRESPONDENCE STUDY

LEGRADE NOBLE, Director.

THE Utah State Agricultural College was one of the first educational institutions of the intermountain region to establish a Correspondence or home study department. Correspondence study furnishes an excellent opportunity for systematic instruction to students of high school or of college grade; in fact to all who cannot leave home for residence at college.

Students must be nineteen years of age, or submit fifteen units of high school work, or be graduates of a high school for admission to Correspondence study courses of college grade. One-fifth of the credits (37) necessary for a degree may be earned through this department.

In the college division a wide variety of subjects is offered in the following departments: Agricultural Economics and Marketing, Agronomy, Animal Husbandry, including Poultry and Dairying, Art, Bacteriology, Business Administration and Accounting, Economics, Education, English, Entomology, Forestry, Geology, Home Economics, History, Horticulture, Irrigation and Drainage, Mathematics, Political Science, Psychology, Public Health, Zoology and Entomology.
Preparatory or high school courses are offered for those who have been unable to complete their high school courses and who wish to satisfy the entrance requirements of the College and also for those who wish to fit themselves for careers in which the equivalent of a high school education is necessary.

A special catalog of Correspondence study courses will be mailed on request.

**BRANCH AGRICULTURAL COLLEGE**

H. WAYNE DRIGGS, Director.

The Branch Agricultural College was established in 1913 as a branch of the Utah State Agricultural College. It had been, since 1897, a Normal school and a branch of the State University. The change was made to meet the growing need of Southern Utah in its agricultural development. Since the primary object of the school is to serve the people and train the youth of Southern Utah to become home and community builders, the Branch College offers a thorough and liberal education in keeping with state law, in the branches of Agriculture, Home Economics, Vocational Industrial Education, Basic Arts and Sciences, Business, Social Sciences and Normal Training, with courses which parallel those of the lower division of the parent institution.

Beginning with 1936-37 school year, the Board of Trustees authorized the addition of Senior Division courses in Agronomy, Animal Husbandry, and Agricultural Economics and related work. This enables the students in Agriculture to obtain a B. S. degree in these departments with one year of additional work at the Utah State Agricultural College at Logan.

The Extension Service and the Experiment Station are closely connected with the B. A. C., and certain members of the resident staff at Cedar City are also members of the staff of these two divisions. The Deans of the parent institution supervise closely the work of the corresponding divisions here.
Fifty-second
Annual Commencement

LIST OF GRADUATES 1944-45

GRADUATE DIVISION

Doctor of Laws (Honorary)
Peterson, Elmer George

Graduate with the Degree of Master of Education

SCHOOL OF EDUCATION

Cooley, Charles B.

Graduates with the Degree of Master of Science

SCHOOL OF ARTS AND SCIENCES

Cole, Larry S. Sorensen, Charles Cole

SCHOOL OF EDUCATION

Chadwick, John W. Gowans, Max L. Strain, L. Helen

UNDERGRADUATE DIVISION

Graduates with the Degree of Bachelor of Science

SCHOOL OF AGRICULTURE

Drage, Donald A. Jensen, Earl H. Ward, Dean T.
Fowkes, Clarence J. Rickenbach, Rodney G.

SCHOOL OF ARTS AND SCIENCES

Bergreen, Stanley Wilford Humpherys, Roy Weaver Oldroyd, Elva
Cannon, Virginia Bateman Johnson, Don Alphalus Porter, Dean Orlando
Jasper, Shirley Johnson, Vere H. Randall, Clarence
Coray, Mary Catherine Jones, Bonna Lorean Chipman
Crockett, Jeanne Kimball, Adrus Hansen Riggs, Virginia M.
Crookston, Lynn B. Lindholm, Elizabeth Smith, Patricia Jean
Crookston, Nathan Lynn Louise Sorensen, James Keith
Dalpiaz, Inez Frances Loosle, Katie Spencer, Orson B.
Griffin, Richard Andrew Newey, James Aaron
### School of Commerce

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### School of Engineering, Industries and Trades

#### Civil Engineering

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### School of Home Economics

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<td>Danielson, Lucille</td>
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<td></td>
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<td>Page, Louise</td>
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SUMMARY OF ATTENDANCE
Regular School Year
September 25, 1944 to June 8, 1945

<table>
<thead>
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<th>RANK</th>
<th>AGRICULTURE</th>
<th>FORESTRY</th>
<th>ARTS &amp; SCIENCES</th>
<th>COMMERCE</th>
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<td>78</td>
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</table>

(Men, 340—Women, 788)
Summer Session and Intersession, 1944 (Men, 169—Women, 178) .............................................. 347
# INDEX

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Regulations</td>
<td>39</td>
</tr>
<tr>
<td>Accounting</td>
<td>117</td>
</tr>
<tr>
<td>Administration</td>
<td>8</td>
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<tr>
<td>Administration and Supervision</td>
<td>143</td>
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<td>39</td>
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<td>41</td>
</tr>
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<td>171</td>
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<td>63, 113</td>
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<td>Agricultural Engineering</td>
<td>160</td>
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<td>Agricultural Experiment Station</td>
<td>236</td>
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<td>Agriculture, Department of</td>
<td>62</td>
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<td>Agriculture, General and Specialized</td>
<td>59, 60</td>
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<td>Agriculture, School of</td>
<td>57</td>
</tr>
<tr>
<td>Agronomy and Soils</td>
<td>65</td>
</tr>
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<td>135</td>
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<td>Arts and Sciences, School of</td>
<td>81</td>
</tr>
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<td>Automotive</td>
<td>174</td>
</tr>
<tr>
<td>Awards and Scholarships</td>
<td>51</td>
</tr>
<tr>
<td>Bachelor of Science Degree, Requirements for</td>
<td>46</td>
</tr>
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<td>Bacteriology and Biochemistry</td>
<td>69, 84</td>
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<td>Band, R. O. T. C.</td>
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<td>Biochemistry</td>
<td>69, 84</td>
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<td>Biology</td>
<td>71, 84</td>
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<td>Branch Agricultural College</td>
<td>26, 240</td>
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<td>Building Construction</td>
<td>184</td>
</tr>
<tr>
<td>Buildings and Facilities</td>
<td>32</td>
</tr>
<tr>
<td>Business Administration</td>
<td>115, 118</td>
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<tr>
<td>Cadet Nursing</td>
<td>83</td>
</tr>
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<td>Cafeteria</td>
<td>33</td>
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<tr>
<td>Campus Organizations</td>
<td>37</td>
</tr>
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<td>Chemistry</td>
<td>85</td>
</tr>
<tr>
<td>Child Development and Parental Education</td>
<td>216</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>162</td>
</tr>
<tr>
<td>Civilian Pilot Training Ground School</td>
<td>173</td>
</tr>
<tr>
<td>Clothing</td>
<td>217</td>
</tr>
<tr>
<td>College Calendar</td>
<td>5</td>
</tr>
<tr>
<td>College Citizenship</td>
<td>55</td>
</tr>
<tr>
<td>Commencement, Fifty-second Annual</td>
<td>241</td>
</tr>
<tr>
<td>Commerce, School of</td>
<td>111</td>
</tr>
<tr>
<td>Correspondence Study</td>
<td>239</td>
</tr>
<tr>
<td>County Extension Agents</td>
<td>28</td>
</tr>
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<td>Credit by Examination</td>
<td>42</td>
</tr>
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<td>Topic</td>
<td>Page</td>
</tr>
<tr>
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<td>73</td>
</tr>
<tr>
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<td>37</td>
</tr>
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<td>Degrees, Requirements for:</td>
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<td>Bachelor of Science</td>
<td>46</td>
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<td>Master of Science</td>
<td>230</td>
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<td>Dramatic Arts</td>
<td>37</td>
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<td>120</td>
</tr>
<tr>
<td>Education, Elementary</td>
<td>138</td>
</tr>
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<td>Education, School of</td>
<td>123</td>
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<tr>
<td>Education, Secondary</td>
<td>140</td>
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<td>Elementary Training School Staff</td>
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<td>Emeritus Faculty</td>
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<tr>
<td>Engineering, Civil</td>
<td>162</td>
</tr>
<tr>
<td>Engineering, School of</td>
<td>157</td>
</tr>
<tr>
<td>Engineering Division</td>
<td>159</td>
</tr>
<tr>
<td>Engineering Experiment Station</td>
<td>237</td>
</tr>
<tr>
<td>English</td>
<td>88</td>
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<td>English Placement Examination</td>
<td>43</td>
</tr>
<tr>
<td>Entomology</td>
<td>107</td>
</tr>
<tr>
<td>Entrance Requirements (See Admission)</td>
<td>39</td>
</tr>
<tr>
<td>Excess Registration</td>
<td>42</td>
</tr>
<tr>
<td>Expenses</td>
<td>43</td>
</tr>
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<td>Experiment Station Staff</td>
<td>15</td>
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<tr>
<td>Extension Service</td>
<td>22, 238</td>
</tr>
<tr>
<td>Faculty</td>
<td>10</td>
</tr>
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<td>Faculty Committees</td>
<td>9</td>
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<tr>
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<td>49</td>
</tr>
<tr>
<td>Foods and Nutrition</td>
<td>219</td>
</tr>
<tr>
<td>Forest Management</td>
<td>194</td>
</tr>
<tr>
<td>Forest, Range and Wildlife Management, School of</td>
<td>191</td>
</tr>
<tr>
<td>Fraternities, Honorary and Social</td>
<td>37</td>
</tr>
<tr>
<td>French</td>
<td>88</td>
</tr>
<tr>
<td>Geology</td>
<td>98</td>
</tr>
<tr>
<td>German</td>
<td>98</td>
</tr>
<tr>
<td>Graduates—1944-45</td>
<td>241</td>
</tr>
<tr>
<td>Graduate Division of Social Work</td>
<td>130</td>
</tr>
<tr>
<td>Graduate School</td>
<td>239</td>
</tr>
<tr>
<td>Graduate Work in Education</td>
<td>144</td>
</tr>
<tr>
<td>Graduation</td>
<td>45</td>
</tr>
<tr>
<td>Group Requirements</td>
<td>44</td>
</tr>
<tr>
<td>Guidance Program</td>
<td>56</td>
</tr>
<tr>
<td>Health Service</td>
<td>55, 149</td>
</tr>
<tr>
<td>Herbarium</td>
<td>36</td>
</tr>
<tr>
<td>High School Certificate, Requirements for</td>
<td>48</td>
</tr>
<tr>
<td>History</td>
<td>94</td>
</tr>
<tr>
<td>History of the College</td>
<td>31</td>
</tr>
<tr>
<td>Home Demonstration Agents</td>
<td>24</td>
</tr>
<tr>
<td>INDEX</td>
<td>Page</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Home Economics, Department of</td>
<td>215</td>
</tr>
<tr>
<td>Home Economics, School of</td>
<td>203</td>
</tr>
<tr>
<td>Horticulture</td>
<td>74</td>
</tr>
<tr>
<td>Household Administration</td>
<td>74</td>
</tr>
<tr>
<td>Hygiene</td>
<td>102</td>
</tr>
<tr>
<td>Incomplete Work</td>
<td>42</td>
</tr>
<tr>
<td>Industrial Arts</td>
<td>187, 188</td>
</tr>
<tr>
<td>Industrial Division</td>
<td>168</td>
</tr>
<tr>
<td>Industrial Education Program</td>
<td>186</td>
</tr>
<tr>
<td>Institutional Management</td>
<td>219</td>
</tr>
<tr>
<td>Intramural Sports</td>
<td>150</td>
</tr>
<tr>
<td>Introduction</td>
<td>29</td>
</tr>
<tr>
<td>Irrigation (See Agricultural Engineering)</td>
<td>160</td>
</tr>
<tr>
<td>Journalism</td>
<td>92</td>
</tr>
<tr>
<td>Junior Division</td>
<td>43</td>
</tr>
<tr>
<td>Laboratories</td>
<td>36</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>76</td>
</tr>
<tr>
<td>Late Registration</td>
<td>41</td>
</tr>
<tr>
<td>Latin</td>
<td>100</td>
</tr>
<tr>
<td>Library</td>
<td>36</td>
</tr>
<tr>
<td>Library Science</td>
<td>143</td>
</tr>
<tr>
<td>Location of the College</td>
<td>30</td>
</tr>
<tr>
<td>Major Subject</td>
<td>45</td>
</tr>
<tr>
<td>Marketing</td>
<td>63, 113</td>
</tr>
<tr>
<td>Master's Degree</td>
<td>230</td>
</tr>
<tr>
<td>Mathematics</td>
<td>96</td>
</tr>
<tr>
<td>Mechanical Drawing</td>
<td>179</td>
</tr>
<tr>
<td>Merchandising</td>
<td>119</td>
</tr>
<tr>
<td>Metalwork and Mechanical Drawing</td>
<td>179</td>
</tr>
<tr>
<td>Military Science and Tactics</td>
<td>223</td>
</tr>
<tr>
<td>Military Science Regulations</td>
<td>224</td>
</tr>
<tr>
<td>Minor Subjects</td>
<td>45</td>
</tr>
<tr>
<td>Modern Languages and Latin</td>
<td>97</td>
</tr>
<tr>
<td>Music</td>
<td>145</td>
</tr>
<tr>
<td>Non-Resident Fee</td>
<td>48</td>
</tr>
<tr>
<td>Normal Registration</td>
<td>41</td>
</tr>
<tr>
<td>Nutrition</td>
<td>219</td>
</tr>
<tr>
<td>Officers of Administration</td>
<td>8</td>
</tr>
<tr>
<td>Opera</td>
<td>37</td>
</tr>
<tr>
<td>Phi Kappa Phi</td>
<td>37</td>
</tr>
<tr>
<td>Physical Education</td>
<td>149</td>
</tr>
<tr>
<td>Physical Plant</td>
<td>32</td>
</tr>
<tr>
<td>Physics</td>
<td>100</td>
</tr>
<tr>
<td>Physiology, Public Health and Hygiene</td>
<td>102</td>
</tr>
<tr>
<td>Pilot Training</td>
<td>173</td>
</tr>
<tr>
<td>Plant Pathology</td>
<td>71, 84</td>
</tr>
<tr>
<td>Policy of the College</td>
<td>30</td>
</tr>
<tr>
<td>Political Science</td>
<td>123</td>
</tr>
<tr>
<td>Portuguese</td>
<td>99</td>
</tr>
<tr>
<td>Poultry Husbandry</td>
<td>77</td>
</tr>
<tr>
<td>Topic</td>
<td>Page</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Predental Training</td>
<td>83</td>
</tr>
<tr>
<td>Pre-Legal Training</td>
<td>112</td>
</tr>
<tr>
<td>Premedical Training</td>
<td>82</td>
</tr>
<tr>
<td>Pre-Nursing Training</td>
<td>83</td>
</tr>
<tr>
<td>Pre-Veterinary Course of Study</td>
<td>79</td>
</tr>
<tr>
<td>Probation</td>
<td>42</td>
</tr>
<tr>
<td>Provisions for Education of Veterans</td>
<td>41</td>
</tr>
<tr>
<td>Psychological Clinic</td>
<td>55</td>
</tr>
<tr>
<td>Psychology</td>
<td>155</td>
</tr>
<tr>
<td>Public Health</td>
<td>102</td>
</tr>
<tr>
<td>Radio</td>
<td>181</td>
</tr>
<tr>
<td>Range Management</td>
<td>197</td>
</tr>
<tr>
<td>Recreation</td>
<td>149</td>
</tr>
<tr>
<td>Registration and Credits</td>
<td>41</td>
</tr>
<tr>
<td>Registration Dates</td>
<td>41</td>
</tr>
<tr>
<td>Reserve Officers Training Corps</td>
<td>225</td>
</tr>
<tr>
<td>R. O. T. C. Advanced Courses</td>
<td>227</td>
</tr>
<tr>
<td>R. O. T. C. Band</td>
<td>226</td>
</tr>
<tr>
<td>R. O. T. C. Basic Courses</td>
<td>227</td>
</tr>
<tr>
<td>Rural Economy</td>
<td>63</td>
</tr>
<tr>
<td>Scholarships and Awards</td>
<td>51</td>
</tr>
<tr>
<td>School of Agriculture</td>
<td>57</td>
</tr>
<tr>
<td>School of Arts and Sciences</td>
<td>81</td>
</tr>
<tr>
<td>School of Commerce</td>
<td>111</td>
</tr>
<tr>
<td>School of Education</td>
<td>133</td>
</tr>
<tr>
<td>School of Engineering, Industries and Trades</td>
<td>157</td>
</tr>
<tr>
<td>School of Forest, Range and Wildlife Management</td>
<td>191</td>
</tr>
<tr>
<td>School of Home Economics</td>
<td>203</td>
</tr>
<tr>
<td>Secondary Education</td>
<td>140</td>
</tr>
<tr>
<td>Secretarial Science</td>
<td>128</td>
</tr>
<tr>
<td>Self-help</td>
<td>50</td>
</tr>
<tr>
<td>Senior Division</td>
<td>45</td>
</tr>
<tr>
<td>Social Work, Division of</td>
<td>130</td>
</tr>
<tr>
<td>Sociology</td>
<td>128</td>
</tr>
<tr>
<td>Soils</td>
<td>65</td>
</tr>
<tr>
<td>Sororities, Honorary and Social</td>
<td>37</td>
</tr>
<tr>
<td>Spanish</td>
<td>99</td>
</tr>
<tr>
<td>Special Awards</td>
<td>51</td>
</tr>
<tr>
<td>Special Fees</td>
<td>49</td>
</tr>
<tr>
<td>Speech</td>
<td>104</td>
</tr>
<tr>
<td>Speech Clinic</td>
<td>55</td>
</tr>
<tr>
<td>Stenography</td>
<td>126</td>
</tr>
<tr>
<td>Student Body Organization</td>
<td>37</td>
</tr>
<tr>
<td>Student Employment</td>
<td>50</td>
</tr>
<tr>
<td>Student Health Service</td>
<td>55</td>
</tr>
<tr>
<td>Student Organizations</td>
<td>36</td>
</tr>
<tr>
<td>Student Publications</td>
<td>37</td>
</tr>
<tr>
<td>Summary of Attendance</td>
<td>248</td>
</tr>
<tr>
<td>Summer Camp (Forestry)</td>
<td>193</td>
</tr>
<tr>
<td>Summer Session</td>
<td>239</td>
</tr>
<tr>
<td>Category</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Supervision of Women Students</td>
<td>56</td>
</tr>
<tr>
<td>Teacher Placement Bureau</td>
<td>134</td>
</tr>
<tr>
<td>Teacher's Certificates</td>
<td>46, 135</td>
</tr>
<tr>
<td>Teaching Assistantships</td>
<td>51</td>
</tr>
<tr>
<td>Technical Institute Program</td>
<td>171</td>
</tr>
<tr>
<td>Terminal Certificate</td>
<td>46, 169, 216</td>
</tr>
<tr>
<td>Textiles and Clothing</td>
<td>217</td>
</tr>
<tr>
<td>Theatrical</td>
<td>37</td>
</tr>
<tr>
<td>Training for Government Service</td>
<td>112</td>
</tr>
<tr>
<td>Transfer Students</td>
<td>41</td>
</tr>
<tr>
<td>Typewriting</td>
<td>126</td>
</tr>
<tr>
<td>Vegetable Crops</td>
<td>78</td>
</tr>
<tr>
<td>Veterans, Provisions for Education</td>
<td>41</td>
</tr>
<tr>
<td>Veterinary Science</td>
<td>79</td>
</tr>
<tr>
<td>Vocational Agriculture</td>
<td>61</td>
</tr>
<tr>
<td>Vocational Education</td>
<td>142</td>
</tr>
<tr>
<td>Vocational Industrial Program</td>
<td>169</td>
</tr>
<tr>
<td>Wildlife Management</td>
<td>200</td>
</tr>
<tr>
<td>Women's Residence Hall</td>
<td>35</td>
</tr>
<tr>
<td>Woodwork and Building Construction</td>
<td>184</td>
</tr>
<tr>
<td>Zoology and Entomology</td>
<td>107</td>
</tr>
</tbody>
</table>