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## Water Resources Management - University of California, Davis

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**ECI 267 - Water Resources Management**MWF 9-10  
1134 BainerInstructor: Jay R. Lund  
Office: Center for Watershed Sciences; 752-5671; jrlund@ucdavis.edu  
Office Hours: MW 3-4pm, by appointment, and usually if I'm in.

<u>Date</u>	<u>Topic</u>	<u>Readings and Assignments</u>
Sept 27	Introduction and Water Management Objectives;	Bulletin 160-09, Volume 1 (on web - skim)
30	Old and New Management	Frontinus 97AD
Oct. 2	Water Engineering History	Tarr 1984
4	Valuing Benefits and Costs - Dr. Josue Medellin-Azuara	Lew, et al. 1996 [Jay gone]
7	Water in California	Bulletin 160-09 Volume 3 (Chapter 1 + another)
9	Pajaro Valley case study – Professor Sam Sandoval	[Jay gone]
11	Agencies and Governance	Bish 1982, chapter 3; read an UWMP; <u>1/2 page on topic due</u>
14	Water and Development	Walker and Williams 1982
16	Planning Theories	Lund 2006; Gregory & Keeney 2003; skim <a href="#">U.S. Water Res. Council 1983</a>
18	Water Law	Sax 2004
21	Water Law	Cox 1982; <u>Detailed paper outline &amp; bibliography due</u>
23	"Supply" & "Demand" Options	Hanak 2011, Ch. 6; Bulletin 160-09 Volume 2 (skim; read one chapt.)
25	Sacramento-San Joaquin Delta	<u>Sign up for a water plan to present</u>
26	Delta Field Trip? (Mandatory)	
28	<i>Managing California's Water#1</i>	Hanak 2011, Chapters 0-4
30	Modeling Methods	James et al., 1969 [Jay gone]
Nov. 1	Delivery Reliability Modeling	Delivery-reliability notes; hand out simulation assignment
4	Delivery Reliability Modeling	[Jay gone]
6	Water Marketing	Lund & Israel 1995
8	Large-scale Modeling	Draper, et al. 2003; Harou et al. 2009; <u>Simulation HW Due</u>
11	<b>HOLIDAY</b>	
13	Models in Management 1	Disco & van der Ende 2003
15	Models in Management 2	Lund and Palmer 1997
18	<i>Managing California's Water#2</i>	Hanak 2011, Chapters 5-10
20	Finance and Equity	Madani 2009; Giglio and Wrightington 1972; <u>Complete Draft Papers due</u> (2 copies)
22	Catastrophes	McPhee Apachalaya (1985) [Jay gone?]
25	Discussion of California Water Plans	<u>Present one water plan w/ 1 page summary [Make a booklet!]</u>
27	Project & Paper Discussions	<u>Paper reviews due</u>
29	<b>HOLIDAY</b>	
Dec. 2	Project & Paper Discussions	
4	Project & Paper Discussions	
6	Project & Paper Discussions	
12	Final exam period: Thursday, 6-8pm: additional Project & Paper Discussions	

Project: Choose a topic of interest to you in consultation with the instructor. Interim products are due throughout the quarter with final drafts due December 11.

Field Trip: There is a mandatory field trip of the Delta October 26 or November 1.

Daily California water news: Subscribe to DWR's Water News

[http://listhost2.water.ca.gov/mailman/listinfo/water\\_news](http://listhost2.water.ca.gov/mailman/listinfo/water_news)

Book: Hanak, et al. (2011), *Managing California's Water: From conflict to reconciliation*, free at ppic.org.

**Reading list:**

- Bish, R.L. (1982), "The Constitutional Framework," Chapter 3, *Governing Puget Sound*, Washington Sea Grant, Seattle, WA.
- California Department of Water Resources (1998), *California Water Plan Update, Bulletin 160-98*, Sacramento, CA.
- Cox, W.E. (1982), "Water Law Primer," *Journal of Water Resources Planning and Management*, ASCE, Vol. 108, No. WR1, pp. 107-122.
- Disco, C. & J. van der Ende (2003), "Strong, Invincible Arguments?: Tidal models as management instruments in twentieth-century Dutch coastal engineering," *Technology and Culture*, Vol. 44, July, pp. 502-535.
- Draper, A.J., M.W. Jenkins, K.W. Kirby, J.R. Lund, and R.E. Howitt (2003), "Economic-Engineering Optimization for California Water Management," *Journal of Water Resources Planning and Management*, Vol. 129, No. 3, May, pp. 155-164.
- Frontinus, S.J. (97AD), *The Water Supply of the City of Rome*, Clemens Herschel's translation.
- Giglio, R.J. and R. Wrightington (1972), "Methods for Apportioning Costs among Participants in Regional Systems," *Water Resources Research*, Vol. 8, No. 5, pp. 1133-1144.
- Gregory, R.S. and R.L. Keeney (2003), "Making Smarter Environmental Management Decisions," *Journal of the American Water Resources Association*, Vol. 38, No. 6, Dec., pp. 1601-1612.
- Hundley, N. (2000), *The Great Thirst*, University of California Press, Berkeley, CA.
- James, I.C., B.T. Bower, and N.C. Matalas (1969), "Relative Importance of Variables in Water Resources Planning," *Water Resources Research*, Vol. 5, No. 6, pp. 1165-1173.
- Hanak, et al. (2011), *Managing California's Water: From conflict to reconciliation*, PPIC, ppic.org.
- Harou, J.J., Met al., "Hydro-economic Models: Concepts, Design, Applications, and Future Prospects," *Journal of Hydrology*, Vol. 375, Iss. 3-4, 15 September, pp. 627-643, 2009.
- Kelley, R. (1989), *Battling the Inland Sea*, University of California Press, Berkeley, CA.
- Lew, D., et al. (1996), *Approaches to Economic Valuation of Changes in Receiving Water Quality: A Critical Review*, project report, University of California Davis.
- Lund, J.R. (2006), "Approaches to Planning Water Resources," unpublished typescript, 18pp.
- Lund, J.R. and M.S. Israel (1995), "Water Transfers in Water Resource Systems," *Journal of Water Resources Planning and Management*, ASCE, Vol. 121, No. 2, pp. 193-204.
- Lund, J.R. and R.N. Palmer (1997), "Water Resources System Modeling for Conflict Resolution," *Water Resources Update*, Issue No. 108, Summer.
- Madani, K. (2009), "Game theory and water resources," *Journal of Hydrology* 381 (3-4), 225-238
- McPhee, J. (1985), "Apachalaya," *The Control of Nature*, Farrar Straus Giroux, New York.
- Rogers, P.P. and M.B. Fiering (1986), "Use of Systems Analysis in Water Management," *Water Resources Research*, Vol. 22, No. 9, pp. 146S-158S.
- Sax, J.L. (2004), "The History of Water Law in the United States," *Water Resources Center Archives News*, Vol. 11, No. 1, June.
- Tarr, J.A. (1984), "Water and Wastes: A Retrospective Assessment of Wastewater Technology in the United States, 1800-1932," *Technology and Culture*, Vol. 25, No. 2 (April), pp. 226-263.
- U.S. Water Resources Council (1983), [\*Economic and Environmental Principles and Guidelines for Water And Related Land Resources Implementation Studies\*](#).
- Walker, R.A. and M.J. Williams (1982), "Water from Power: Water Supply and Regional Growth in the Santa Clara Valley," *Economic Geography*, Vol. 58, No. 2 (April), pp. 95-119.
- White, Gilbert (1966), *Alternatives in Water Management*, Publication 1408, National Academy of Sciences – National Research Council, Washington, DC, 52pp.

**California Water Plans – Pick one! (These are available in the University library.)**

- 1873 Report of the Board of Commissioners on the Irrigation of the San Joaquin, Tulare, and Sacramento Valleys of the State of California
- 1919 "Marshall Plan" 1923 State plan
- 1930 *State Water Plan* (PSL TC 824/C2/A2/no. 25)
- 1957 DWR, *The California Water Plan*, Bulletin No. 3
- 1966 DWR Bulletin 160-66 (PSL TC 824 C2 A2 No. 160)
- 1970 DWR Bulletin 160-70, 1974 DWR Bulletin 160-74, 1983 DWR Bulletin 160-83
- 1987 DWR Bulletin 160-87 1993 DWR Bulletin 160-93 1998 DWR Bulletin 160-98

2005 DWR Bulletin 160-05 2009 DWR Bulletin 160-09 [most recent available on web]