

Course Code & No. - Section:	ESCI 301 - Section 1
Course Title (Credits):	Hydrology and Water Resources (1)
Term & Year:	Spring 2015
Course Ref. No. (CRN):	10017
Instructor:	Dr. Andy Rost
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Office:	2 nd floor TCES – SNC Faculty Area
Office Hours:	MW 9:30-11:15, T 9:30-2:30 and by appointment
Class Meeting Time:	M:W 10:00-11:15
Location:	TCES 205
Corequisites (from Catalog):	ESCI 305 (lab)
Prerequisite	ENVS 200/205

Course Description

Hydrology and Water Resources, ESCI 301, is the third course in the Earth Science series at Sierra Nevada College. The course will actually be two courses set within one. One course is an introductory Hydrology Science course in which students will conduct in-depth and detailed explorations into the hydrologic cycle including precipitation (emphasizing snow formation and snow melt), interception, transpiration, evaporation, infiltration, runoff, and groundwater. Hydrologic studies will include case studies, data analyses, modeling, and will culminate in a calibrated hydrological watershed model of a local watershed. The second course is a multidisciplinary study of water resources. In this course students will explore the water management issues through case studies with an emphasis on western rivers. Case studies will be lead by your professor and experts in the field who are scheduled to be guest speakers throughout the semesters. Studies may include analysis of the Water law, the Walker, Truckee, San Joaquin, South Fork of the Yuba, Sagehen Creek and the Colorado Rivers.

Student Outcomes (from the Course Approval Form)

Upon successful completion of this course, a student will be able to: (for example)

1. Quantitatively understand the hydrologic cycle
2. Computation skills related to data analysis, developing and calibrating functional hydrologic models.
3. Field experience related with hydrologic and hydraulic monitoring
4. Understand historical, political, and resource issues surrounding water with an emphasis and western rivers.
5. Gain expose to profession fields related to hydrology

Methods of Assessing Student Outcomes

Student outcomes will be assessed using the following:

1. Homework Assignments
2. Closed-book examinations
3. Class Projects including modeling hydrologic processes
4. In class presentations
5. Written assignments related to readings

Instructional Strategies

This class will utilize lectures, movies, lab work, small groups, and individual work in class using laptop computers, inquiry learning, case studies, homework assignments, and a class project. The course makes use of the *Moodle* course management system.

Required Texts and Materials

1. *Physical Hydrology*; S. Lawrence Dingman, 2002, 2nd edition Waveland Press, Inc. Long Grove, Illinois ISBN: 1-57766-561
2. Laptop computer (one that meets the published SNC Laptop Requirements) with MS excel
3. *Cadillac Desert, The American West and its disappearing water*, Revised and Updated; Reisner, M. 1986, Penguin Books, ISBN 0140178244 - Recommended

Prim Library Resources

Using the library's resources effectively (not just Internet resources) contributes to developing each of SNC's core themes by exposing students to high quality academic resources, diverse opinions, new ideas, and a future that includes building on a liberal arts education. In this course, you will be expected to utilize the library's resources (either on-site or remotely) as you complete your assignments.

Prim Library Resources for ESCI 301; Hydrologic Sciences and Water Resources includes but are not limited to:

1. Electronic databases (for peer-reviewed research articles, reviews, newspaper and magazine articles): Electronic databases most likely to include articles related to your term paper topics are EBSCO: Academic Search Premier, Environment Complete, General Science Collection, GreenFILE, Health Source, Newspaper Source, and TOPICsearch; BioOne; and GREENR.
2. Hardcopy periodicals: Prim Library has current subscriptions for Science, New Scientist, Science News, and National Geographic Magazine. Any of these are likely to have articles on your term paper topic. Full-text articles from many more periodicals are available through the electronic databases.
3. Lib Guides: <http://Libguides.sierranevada.edu> These web pages contain instructions about how to use resources available at Prim Library, how to evaluate the appropriateness of information from the Internet for a research paper, how to cite sources, and other topics related to finding and using information.

Attendance and Class Participation

Due to the small size and dynamic nature of the class, students are required to attend every class and be active participants. Students are required to be in class promptly and ready to learn and participate at the scheduled meeting time. Tardiness will not be tolerated.

During the semester, several professionals involved in water management will be guest presenters. It is essential that on these days (typically Wednesdays) students attend class well prepared, eager to learn. There may be some out of class meetings (currently not scheduled) that will be discussed well in advance. Flexibility and a willingness to participate will be essential for a great class.

Class Requirements

Assignments are due at the beginning of class, no exceptions. Students are required to bring a hard copy of assignments to class, emailed copies are not acceptable. A letter grade will be deducted for each day the assignment is late. Students are required to bring laptops to class, however laptops and phone are to remain off unless otherwise noted. Please dress appropriately and be prepared to spend some time outside. Students may be asked to offer cars for car-pooling; gas expenses will be compensated.

Projects

Throughout the semester, students will be involved with multiple projects ranging in difficulty. Projects are typically done in groups. The final project will be a calibrated hydrologic model of a local watershed. Details of all projects will be discussed later in the course.

Exams

Exams will be given during the semester, with details to come later in the semester.

Grading Policy

Grades will include in class and homework assignments, projects, presentations and exams to give the students multiple opportunities to succeed.

Sanctions for Cheating and/or Plagiarism

The Honor Code

The faculty of SNC believes students must be held to high standards of integrity in all aspects of college life in order to promote the educational mission of the College and to encourage respect for the rights of others. Each student brings to the SNC community unique skills, talents, values and experiences which, when expressed within the community, contribute to the quality of the educational environment and the growth and development of the individual. Students share with members of the faculty, administration and staff the responsibility for creating and maintaining an environment conducive to learning and personal development, where actions are guided by mutual respect, integrity, responsibility and trust. The faculty and students alike must make diligent efforts to ensure high standards are upheld by their colleagues and peers as well as themselves. Therefore faculty and students accept responsibility for maintaining these standards at Sierra Nevada College and are obligated to comply with its regulations and procedures, which they are expected to read and understand. If writing is turned in by you, without citation or shared credit, it means you wrote it. Any shared work should be credited, paragraph by paragraph.

Consequences of Violating the Student Honor Code

SNC students and faculty share the responsibility for maintaining an environment of academic honesty. Thus, all are responsible for knowing and abiding by the SNC Faculty/Student Honor Code published in the current SNC Catalog. Faculty are responsible for presenting the Honor Code and the consequences of violating it to students at the start of their classes AND for reporting all incidences of academic dishonesty to the Provost. Students are responsible for knowing what constitutes CHEATING, PLAGIARISM and FABRICATION and for refraining from these and other forms of academic dishonesty. Violations of the Honor Code become part of a student's academic record.

- 1st Offense: Student receives a zero for assignment/exam and counseling with faculty on the honor code, consequences for violating the honor code, and the value of academic honesty in learning.
- 2nd Offense: Student fails course and receives counseling with faculty on the honor code, consequences for violating the honor code, and the value of academic honesty in learning.
- 3rd Offense: Student is expelled.

Moodle Course Site: <http://moodle.sierranevada.edu/moodle/>

ADA Accommodations

In accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, students with a documented disability are eligible for support services and accommodations. If a student wishes to request an accommodation, please contact the Director of Academic Support Services, Henry Conover, at (775) 831-1314 x7534, hconover@sierranevada.edu or go to the OASIS offices on the third floor of Prim Library within the first week of the semester.

The SNC Email System

The SNC email system is the official communication vehicle among students, faculty members and administrative staff and is designed to protect the confidentiality of student information as required by the Family Educational Rights and Privacy Act of 1974 Act (FERPA). Students should check their college email accounts daily during the school year.

Students have a right to forward their SNC e-mail to another e-mail account (for example, @hotmail or @gmail). However, confidentiality of student information protected by FERPA cannot be guaranteed for SNC e-mail forwarded to an outside vendor. Having email redirected does not absolve a student from the responsibilities associated with official communication sent to his or her SNC email account.

CLASS SCHEDULE SPRING 2015*

WEEK	DAY	DATE	TOPICS	Hydro. Class	WR Class	Chapters in Text
1	M	1/19	No Class MLK day			
	W	1/21	Introductions-Water Balance	1		1,2
2	M	1/26	Climate – Hydrologic Cycle	2		3
	W	1/28	Water Resources 1		1	
3	M	2/2	Precipitation	3		4
	W	2/4	Water Resources 2		2	
4	M	2/9	Precipitation – Snow	4		5
	W	2/11	Water Resources 3		3	
5	M	2/16	No Class-Presidents day			
	W	2/18	Water Resources 4		4	
6	M	2/23	Infiltration – water is soil	5		6
	W	2/25	Water Resources 5		5	
7	M	3/2	Review-catch up	6		
	W	3/4	Water Resources 6		6	
8	M	3/9	Exam	7		
	W	3/11	Water Resources 7		7	
	M	3/16	Spring Break			
	W	3/18				
9	M	3/23	Groundwater	8		8
	W	3/25	Water Resources 8		8	
10	M	3/30	Evapotranspiration	9		7
	W	4/1	Water Resources 9		9	
11	M	4/6	Open Channel Flow	10		9
	W	4/8	Modeling Project			
12	M	4/13	Geomorphology	11		
	W	4/15	Modeling Project			
13	M	4/20	Stream Ecology	12		
	W	4/22	Modeling Project			
14	M	4/27	Stream Restoration	13		
	W	4/29	Final Project presentation			
15	M	5/4	Final Project Prep	14		
	W	5/6	Exam Prep. No class			
Exam	F	5/10	Final Exam	3- 6pm		

*Subject to change

Potential Water Resource topics:

Water Law
 Truckee River
 Walker River
 San Francisco Bay-Delta
 Colorado River
 Dams
 International Water Issues
 Yuba River
 California Water
 USGS