

Section 1. Proposed Course Outline (A general statement of course content that informs class syllabus construction. Once approved, all sections of a given course must include this content, no matter which instructor teaches the course, or the mode of delivery. Divisions must include this new course outline in the Divisional Course Outline binder as required by COPPs.)

Course Number: WST 230 Full Course Title for print catalog: Watersheds and Hydrology

Abbreviated Course Title for Banner: Watersheds and Hydrology (30 character limit)

Prerequisites: ENVS 183 or ENVS 181 grade of "C-" or above

Co-requisites: None

Grade Option: Graded (with P/NP option) Pass/No Pass only

Number/Type Credits	Term Minimum Contact	Term Maximum Contact	11-Week Term Contact
<u>3</u> Lecture	<u>30</u> hours (lecture credits x 10)	<u>36</u> hours (lecture credits x 12)	33 hours (lecture credits x 11)
<u>0</u> Lec/Lab	<u>0</u> hours (lec-lab credits x 20)	<u>0</u> hours (lec-lab credits x 24)	0 hours (lec-lab credits x 22)
<u>1</u> Lab	<u>30</u> hours (lab credits x 30)	<u>36</u> hours (lab credits x 36)	<u>33</u> hours (lab credits x 33)
<u>4</u> Total credits (sum)	<u>60</u> Total hours (sum)	<u>72</u> Total hours (sum)	<u>66</u> Total hours (sum)

Course Description (300 character limit):

Physical hydrology of watersheds including the water cycle, water budgets, water yields and peak flows. Effects of surface erosion, stream temperatures, nutrient levels and human activities upon watershed health.

Course Outcomes and Proficiencies

Assessments Planned

What will the student know or be able to do at the end of the What evidence will demonstrate that students have achieved course outcomes? (assessment tools may include departmental tests, written course? products, portfolios, juried performances, quizzes and exams, or What attitudes related to the subject will the student hold? alternative assessments such as qualitative studies, capstone projects, external reviewers, etc.) Upon successful completion of this course, the How each outcome will be assessed: student will: demonstrate use of concepts and principles of Homework, class discussion, written quiz, exam, ecological processes and their interdisciplinary project write-up connections that influence the practice of watershed science. explain in detail the components of the Homework, labs, and exercises using water budget hydrologic cycle, including the roles that calculations on spreadsheets or other software precipitation, evapotranspiration, runoff, groundwater, infiltration, and percolation play apply standard water management approaches Homework. lab exercises and field visits/writeto several distinct watershed types, to illustrate ups, quizzes, and exams assessment and monitoring best practices. compare, and classify stream geomorphology, Lab exercises, field testing, homework, class sediment and channel processes, flow process, discussion, written quiz, exam, project write-up flooding, watershed ecology, and other

watershed processes.	
explain and evaluate responses of streams in case studies to natural and human-caused disturbances, including short-term and longer term climate change.	Homework, written quiz, exam, group project write-up evaluation
evaluate effects of common land-use practices on watershed ecosystems, stream corridors, and ecosystem services provided by the watershed.	Homework, written quiz, exam, and/or field write- up or notebook evaluation
compose draft scope of work statements or management plans while working on group projects.	Observation of student behavior in groups. Group projects and oral presentations. Assessment of written reports.
demonstrate effective teamwork, use appropriate library and information resources, and give technical briefings; simulate public talks.	Observation of student behavior in groups. Group projects and oral presentations. Assessment of written reports.

Course Content by Major Topics

What topics will be presented? What are the main activities of the course? What are the central themes? (See sample at <u>http://www.lanecc.edu/cops/format3.htm</u>.)

Topics:

Hydrologic cycle and water budget Basin geometry Erosion, sedimentation, water quality Channel processes and classification Wetlands classification and delineation Biotic stream classification Water quality indicators Water quality measurement Watershed carbon cycle Primary production Watershed carbon storage Organic matter decomposition Other watershed nutrient/biogeochemical cycles (e.g., nitrogen) Watershed ecological perspective Review and survey watershed ecosystems Ecosystem services provided by unimpaired watersheds Emphasize relational aspects among and between watershed ecosystems in their geomorphic context Watershed dynamics Natural disturbances and changes Human induced change and alternatives Effects of common land use practices on streams Climatic change mechanisms Effects of climate change on streams and other watershed ecosystems

Section 2. Proposal Information

Course Developer:	Type of Proposal	Type of Course:
<u>Paul Ruscher,</u> <u>Stephen Clarke</u>	New course	⊠ Lower Division Collegiate (transfer)
Date: <u>10/17/2012</u>	Currently 199 or 299	$\hfill\square$ Professional/Technical (required or elective)
Catalog year to take effect:	Experimental Course	Developmental, numbered below 100
<u>2012-13</u>	199 Special Studies	
	299 Trends	
	Revised course (If increasing	g credits, use credit change form)
	Reactivated course with no	change
	Reactivated course with cha	anges

Rationale:

How does this proposal further the goals of the program or department?

This is one of two courses (the other being WST 234) that will integrate science and lab/field methods across our WST curriculum. It is designed to provide both a more scientific focus to the WST curriculum, and also provide an introduction to hydrology and watersheds at a more advanced level than ENVS 183 does, for potential transfer students.

What assessment evidence supports this proposal?

The nature of this course is to facilitate students tieing the entire WST curriculum together prior to the capstone course. The course teaches learning outcomes identified by industry experts. How do you know there is a demand for this course?

This is a requirement of the WST program. The course will serve the needs of CT students in the program and also may serve the needs of other students seeking to enhance their field skills. In addition, AAOT students will find this a useful scientific introduction to watersheds and hydrology.

Section 3. Curriculum Equity (http://www.lanecc.edu/cops/curric.htm)

To promote an environment where all learners are encouraged to develop their full potential, this course will support Lane's Curriculum Equity policy in the following way(s):

Using gendered examples equally when illustrating theories and concepts.

Use research sources, graphics, videos and other media that portray women and men from diverse cultural and ethnic backgrounds in roles related to the science and field studies.

Use gender-neutral terms such as people, human, you, they wherever possible and alternate genders where this is not possible.

Section 4. For revised courses only: PREVIOUS Catalog/Course Information:

Course Number: _____ Course Title in Banner: _____ (30 characters maximum)

Full Course Title in print catalog:

Prerequisites:

Co-requisites:

Grade Option: Graded (with P/NP option) Pass/No Pass only

Number/Type Credits	Term Minimum Contact	Term Maximum Contact	11-Week Term Contact
Lecture	hours (lecture credits x 10)	hours (lecture credits x 12)	hours (lecture credits x 11)

Lec/Lab	hours (lec-lab credits x 20)	hours (lec-lab credits x 24)	hours (lec-lab credits x 22)
Lab	hours (lab credits x 30)	hours (lab credits x 36)	hours (lab credits x 33)
Total credits (sum)	Total hours (sum)	Total hours (sum)	Total hours (sum)

Course Description:

What will change? Course Numb	er 🗌 Title	Course Description	Credit hours	Contact hours

Section 5. Support Courses (New Professional/Technical course proposals must complete.)

Professional/Technical courses are tracked within programs for purposes of Carl Perkins funding and budgetary planning. Indicate all degree or certificate programs for which this course will be required.

Program	Division
Watershed Science Technician	Science

Section 6. Overlap Courses (New course proposals must complete.)

While overlap of course materials is not necessarily a flaw, duplication of course materials may lead to inefficient use of college resources. If there is overlap, the faculty of overlapping courses must agree on the extent of overlap and attach a rationale explaining its necessity.

Options:

- Indicate all departments/courses that this course may overlap. Division Dean of existing course enters one of two options at right. Note: N/A is not an option.
- 1. Approved: overlap is acceptable. Rationale attached.
- 2. Disapproved: reasons attached.

Division	Course Number / Title	% Overlap	Option	Division Dean of existing course (Signature required for all options)	Date
Science	ENVS 181	5%	1		
Science	ENVS 183	15%	1		
Science	ENVS 184	10%	1		
Science	G 102/202	5%	1		
Science	GS 102	5%	1		
Social Science / Geography	GEOG 141	10%	1		

Section 7. Qualification to fulfill degree requirements (complete all relevant forms, available at <u>http://www.lanecc.edu/currsched/drrcforms.htm</u>, and send to Mary Brau for the Degree Requirements Review Committee):

Form(s) applying for the following degree requirement status have been attached. (Only check this box when forms have been completed and attached.)

AAOT, ASOT-Bus, OTM:

AAOT:

Arts & Letters

Social Sciences

Science / Mathematics / Computer Science

AAS, 1-year and 2-year certificates:

Ethnic/Gender/Cultural Diversity

Human Relations

Section 8. Library Impact Statement

Under accreditation standards, Library consultation is essential for new programs, new courses and for substantively revised courses when the revisions entail any change in library use.

What assignments will require the use of library and information resources?

There will be a research project assignment that will require extensive online and physical library resources.

Each academic area has a Liaison Librarian (<u>http://www.lanecc.edu/library/services/liaison.htm</u>). Contact the designated librarian to discuss the library needs of your course. Please allow the librarian at least one week to assess library resources.

To be completed by Liaison Librarian:

Library resources are adequate to support this proposal.

Additional resources are needed but can be obtained from current funds.

Significant additional Library funds/resources are required to support	Liaison Librarian	Date
this proposal.		

Section 9. Divisional Approval (To be completed by Division Chair and Administrative Assistant)

Human, Physical, and Financial Res Additional instructional costs (staff, services or facilities) will be incurred to Source of funding: General Fund	ources: materials, offer this course.	 Fees: ☑ We have completed fee rationale and fee request forms to be submitted to OISS upon course approval, in compliance with the COPPs procedure, "Fees: Special" ☑ No special fees will be required for this course. Divisional Recommendation:		
☐ No additional instructional resources materials, services or facilities) are need	s (staff, ded to offer this			
course.				
		The Division Chair and Administr	ative Assistant	
	a contification	divisional files. \Box Faculty review of this course was completed within the division on <u>10/15 (</u> date).		
standards according to the COPPs pro "Instructor Qualifications: Credit," to be	cedure filed with			
We have completed faculty certifica for faculty qualified to teach this course with OISS and Human Resources upor approval.	tion form(s) e, to be filed n course	Pass Do Not Pass		
Administrative Assistant/Coordinator	Date	Division Dean	Date	
Section 10. College Approval				
Curriculum Committee Chair	Date	Executive Dean	Date	
Curriculum Approval				
Committee hearing:	Vice Dresident	Association Affaires Object Association of	See Dete	
Date Vice President, A		Academic Attairs, Chief Academic Off	licer Date	