**Part 1: Course Details**

**Division/Department requesting change: Science Division**

**Course developer name and contact information: Pat Boleyn, boleynp@lanecc.edu**

**Division Dean: Paul Ruscher**

**Academic year (e.g., 2018-19) change will take effect: 2018-19**

**TYPE OF PROPOSAL**

 [x] **New course (brand new course or courses that have not been offered in three or more years)**

 [ ] **Currently a 199 or 299 experimental course?** **Attach** **the 199/299** **course outline or syllabus**

 [ ]  New 199/299 experimental course (May be offered two times over a two-year period. After that, experimental courses to be submitted as a new course.)

**TYPE OF COURSE**

[x]  **Lower Division Collegiate** [ ]  **Professional/Technical** [ ]  **Developmental, numbered below 100**

**COURSE NUMBER AND TITLE**

**To determine a transfer course number, check the** [Catalog of Lower Division Collegiate Courses](https://www.lanecc.edu/sites/default/files/currsched/ldccatalog01.docx) or do a web search for schools with similar courses. For CTE, look at schools with similar courses or contact the [Curriculum Office](https://www.lanecc.edu/currsched/curriculum) for help.

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| **Course Number**  | **Short Course Title for Banner (30 character limit)** | **Full Course Title for print catalog**  |
| **ENSC 265**  | **Environmental Sci Field Methods** | **Environmental Science Field Methods** |

**COURSE DESCRIPTION (aim for 300-400 characters/approximately 60-70 words) For help and examples, see** [Sample Course Descriptions](https://www.lanecc.edu/currsched/sample-course-descriptions)**.** If this course is repeatable for credit, please include a sentence in your description. E.g., “This course is repeatable for up to \_\_\_ credits” (cannot exceed 12 credits).

Students will gain practical field experience, with online and face-to-face instruction, using protocols to collect scientific environmental data, particularly in wetlands, and on endangered, threatened and invasive species in various environmental settings. Students also explore monitoring, mitigation, and restoration in these areas. They will work side by side with collaborating resource professionals. One of the following courses is recommended to be taken prior to this class: BI 103B, BI 103F, BI 103J, ENSC 181, BOT 213, or WST 230.

**PREREQUISITES, CO-REQUISITES, GRADE OPTIONS, CREDITS**

Prerequisite courses: None, recommended pre- or co-requisites: None

Placement test code and scores (e.g., 4cpa score of 75-120; if you need a code, contact testing) \_\_N/A\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Co-requisite courses: N/A

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

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| **Credit Breakdown**\_2\_\_ Lecture\_2\_ Lecture/Lab\_\_ Lab\_4\_ Total Credits | **Contact Hours Per Week**\_2\_\_ Lecture\_4\_ Lecture/Lab\_\_ Lab\_6\_ Total Contact Hours per week | **Contact Hour Formula** **1 lecture = 1 contact hour** **1 lecture/lab = 2 contact hours** **1 lab = 3 contact hours**  |

# **Part 2: Rationale, Equity, Library Resources, Course Overlap**

**RATIONALE AND CONTEXT Describe the context and rationale for the new course. How will this course meet the needs of transfer students or employers? What is the demand for this course? How does this proposal further the goals of the program or department? Provide as many details about this new course as possible.**

**This new course meets the need of transfer students because it fulfills lab science requirements. It provides hands-on experience, in the field, working side by side with professionals on topics in field ecology and environmental science. The students learn skills that transfer directly to an employer in the fields of hydrology, environmental science, and ecology, and they collect data that can actually be used by environmental professionals, thus providing job skills. These skills are sought by programs that have degrees in Biology, Earth Science, Ecology, Environmental Sciences, Horticulture, Rangeland Management, and Forestry.**

**This proposed course furthers the goals of the Environmental Sciences program at Lane because the course includes all of the programmatic environmental science outcomes. Transfer students learn and practice the scientific method, make pertinent observations, ask relevant questions, form testable hypotheses about Earth and analyze data and make supportable conclusions regarding interconnected Earth systems. They also collect and display precise and accurate spatial and numerical data using appropriate technology and equipment. They describe the dynamic nature of the Earth, Earth systems and human interactions with those systems including discussing and researching sustainability. This includes the three tiers of sustainability involving ecological principles and best practices, economic impacts of natural resource practices, and justice and equity around resource extraction, mitigation and field methods and the human impact in environmental science.**

**This new course also furthers the goals of the Science Division and the Earth and Environmental Science Discipline because it is unique in its practical focus of bringing students to the field to work side by side with professionals in environmental science. These relationships have already been established by the author of this proposal (Pat Boleyn) during the series of years that she has worked with three different local environmental entities to engage students in the practice of scientific data collection, analysis, reporting, and undergraduate research.**

**[Enter rationale here – 300 word limit]**

**CURRICULUM EQUITY STATEMENT** Please do not copy/paste the [COPPS equity statement](https://www.lanecc.edu/copps/documents/curriculum-equity). Reflect how your course supports equity. **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):**

1. Including content by and about culturally and ethnically diverse people in course syllabi, teaching methodology and evaluation practices whenever feasible;

This course would include examples of sustainable environmental practices that include justice and equity for all of the groups involved, and these would be evident in the syllabus. Teaching methodology would involve exercises and labs that honored diversity within the students taking the class, by selecting groups that would complement each other in terms of learning styles. Pre and post assessment tools would be used to assess whether the instructor was addressing each learning style at the start of the class as well as at the end. Exercises that encouraged sharing cultural and ethnic values would be part of the curriculum by bringing in the traditional tribal field practices and beliefs around natural resource management, as they compare to western science.

1. Using culturally and ethnically diverse persons as guest speakers;

Guest speakers and professionals in the field would be of different ethnic and cultural backgrounds. Course guest speakers would include those from our local tribes, speaking about topics in sustainability and perspectives on management of our local ecosystems and invasive and listed species.

1. Using materials which present a significant number of instances of fully integrated human groupings and settings to indicate equal status and non-segregated social relations;

The media and materials for the online section of the class would contain materials that demonstrated fully integrated human groupings and settings of equal status without segregation.

1. Portraying women and men from diverse cultural and ethnic backgrounds in a wide range of roles;

The class would include examples of wetland, invasive species and endangered and threatened species issues and practical applications where the leaders and innovators and practitioners are men and women from diverse cultural and ethnic backgrounds. I would offer my own experiences as a women with a diverse background that has worked as a natural resource professional for over 20 years. I would relate my experiences and environmental research in a previously male dominated field, and mentor those who might be afraid that their differences would not contribute to their success. This includes my role as a member of a U.S. Fish and Wildlife mandated recovery team member for an endangered species.

Using quotations, references and reading recommendations which are authored by individuals who endorse pluralism; The instructor would research examples of media with resource professionals that were from diverse backgrounds and cultures. One source that would be used could include the Native American ethnobotanical database of plants and their uses. I would also contact the local tribal members.

1. Using gendered examples equally when illustrating theories and concepts; and

This class would include examples of field protocols and course materials in the environmental sciences that are authored by people of different genders and different cultural and ethnic backgrounds. The course would incorporate traditional knowledge from the tribes in Oregon, especially in the ways that the tribes have managed Willamette Valley habitats before the arrival of the Europeans. There would be examples of male and female cultural practices in the management of our Willamette Valley wetlands, forests and other ecosystems.

1. Using class material which assists students in clearly recognizing and accepting basic similarities among all members of the human race as well as the uniqueness and worth of every individual. Examples of such material could include diverse individuals regardless of race, gender, age, religion, disability, national origin, marital status, or class background.

This class would use material that includes research and discussion of social equity and justice around issues in sustainability and environmental practices. The students would examine the correlations between location of our toxic industries and the impoverished communities. To the greatest extent possible, we will use open educational resources to limit financial costs to all students.

**LIBRARY CONSULTATION Please contact your liaison librarian to schedule a 30+ minute individualized instructional consultation and collaboration session. In addition to your specific course-related questions, your librarian will be prepared to share:**

* **Library resources and services that support your teaching and student learning needs**
* **OER (Open Educational Resources) options that align with your program and course curriculum**
* **Strategies for integrating the development of information literacy skills into course content and/or assignments**

Please allow one week for the librarian to prepare for your consultation. If you are not sure who your liaison librarian is, you can either look it up on the [Library’s website](https://library.lanecc.edu/services/liaison) or call the Library Reference Desk at 463-5355. (Librarian signature required above.)

**COURSE OVERLAP Indicate any topic/content overlap with other courses. How will this course's topics and content be differentiated?** If there is overlap, faculty of overlapping courses must **agree on the extent of overlap and** **include a rationale** explaining its necessity. The dean of the division in which overlap occurs must sign approval (see checklist).

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| Division/department | Course Number / Title | Rationale | Dean of overlap course (name) |
| Science | WST 230 Watersheds and Hydrology | 10% overlap with watershed definitions and principles of monitoring and stewardship | Paul Ruscher |
| Science | B103 B, F, J | 10% Species identification | Paul Ruscher |

**CAREER/TECHNICAL COURSE TRACKING (required only for career/technical courses)**

Career/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.

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| **Programs in which course will be required** | **Division** |
| N/A |  |
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# **Part 3: Outcomes, Assessments, Topics**

**List course outcomes, Core Learning Outcomes (CLOs), and Assessments** The information in this section should be used to create your course outline and syllabus. How are Lane’s Core Learning Outcomes emphasized and measured or demonstrated through course assessments? Please indicate which [Core Learning Outcomes and Dimensions](https://www.lanecc.edu/assessment/core-learning-outcomes) are linked to your course outcomes. Need help? Contact Tammy Salman, Faculty Coordinator, Assessment and Curriculum Development or Sarah Lushia, Core Learning Outcomes Coordinator.

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| [**Core Learning Outcomes and Dimension**s](https://www.lanecc.edu/assessment/core-learning-outcomes) **You do not need a CLO for each course outcome**.**EXAMPLE** CLO 1.2:Determine information need, find and cite relevant information | **COURSE-LEVEL LEARNING OUTCOMES** (course outcomes) [See this page for guidance on writing outcomes](https://www.lanecc.edu/assessment/developing-and-refining-learning-outcomes)**EXAMPLE**  Upon successful completion of this course, students will be able to: 1. Describe and explain general plant structure and function in relation to plant growth and development. 2. Demonstrate knowledge of horticultural principles in the cultivation of plants.  | **ASSESSMENTS** Include specific assignments you will use to measure/observe student attainment of outcomes. For assessment ideas see [Authentic Tasks](http://jfmueller.faculty.noctrl.edu/toolbox/tasks.htm)  |
| **4.2 Create and express** messages with clear language and nonverbal forms appropriate to the audience and cultural context**4.3 Organize** the message to adapt to cultural norms, audience, purpose, and medium**5.1 Connect** theory and practice to develop skills, deepen understanding of fields of study and broaden perspectives | Describe and classify wetlands, invasive and threatened and endangered (T & E) species by ecological criteria and observed conditions including hydro-geomorphology, using scientific protocols | Field activities, field journal, practical testing, oral report, practical activity, written quizzes and exams |
| **1.2 Determine** information need, find and cite relevant information**1.5 Evaluate** supporting information and evidence | Describe wetlands’ ecosystem services and the impacts of invasive species | Written quizzes and exams |
| **5.1 Connect** theory and practice to develop skills, deepen understanding of fields of study and broaden perspectives | Infer important hydrological processes acting at a particular site, based on site observations including infiltration, evapotranspiration, soil water storage, drainage and seasonal water budget | Field activities and practical testing, data compilation and reports |
| **1.5 Evaluate** supporting information and evidence**3.4 Invent** or hypothesize new variations on a theme, unique solutions or products; transform and revise solution or project to completion**4.4 Support** assertions with contextually appropriate and accurate examples, graphics, and quantitative information | From direct observations, infer mechanisms for presence of wetland, invasive and T and E species on site, and form testable hypotheses | Field activities, field journal, practical testing |
| **4.4 Support** assertions with contextually appropriate and accurate examples, graphics, and quantitative information | With the aid of direct observations, explain the role of soil and vegetation in the management and quality of water on a wetland site | Field activities, field journal, and reports |
| **4.6** Demonstrate honesty, openness to alternative views, and respect for others' freedom to dissent**5.2 Apply** skills, abilities, theories or methodologies gained in one situation to new situations to solve problems or explore issues**5.3 Use mathematics and quantitative reasoning** to solve problems | Implement basic field standards, including use of field and mathematical skills, tools, and interpretation of measurements fundamental to watersheds in the performance of T-&-E, wetlands and invasive-species surveys and assessment | Field activities and practical testing, data compilation, and reports |
| **5.1 Connect** theory and practice to develop skills, deepen understanding of fields of study and broaden perspectives**5.4 Integrate and reflect** on experiences and learning from multiple and diverse contexts | Summarize best management practices commonly used to conserve T & E species and designate critical habitat, to assess invasive and wetland species and habitat, including communicating clearly with peers | Field journal, scenarios, written reports or quiz, practical testing |
| **1.2 Determine** information need, find and cite relevant information**1.6 Construct** appropriate and defensible reasoning to draw conclusions**2.5 Collaborate** with others to achieve shared goals**3.5 Persist** when faced with difficulties, resistance, or errors; assess failures or mistakes and rework | Effectively utilize appropriate library and other information resources to research professional issues and support lifelong learning and job advancement | Data compilation, written reports, quiz, and practical activities  |
| **1.6 Construct** appropriate and defensible reasoning to draw conclusions | Analyze data and draw supportable conclusions regarding Earth’s interconnected systems in wetlands | Written quizzes and exams, oral and written reports, and presentations |
| **1.1 Identify** and define key issues**1.3 Demonstrate** knowledge of the context and complexity of the issue**2.1 Recognize and clarify** personal values and perspectives | Provide an interdisciplinary perspective that builds understanding of wetland-related sustainable ecological, social, and economic systems, concern for environmental justice, and the competence to act on such knowledge | Written quizzes and exams, and class discussion |
| **5.1 Connect** theory and practice to develop skills, deepen understanding of fields of study and broaden perspectives | Describe the dynamic nature of wetland and ecological systems, and human interactions with those systems in environmental science and ecology | Data compilation, written reports, quiz, and practical activities |

**COMPETENCIES AND TOPICS COVERED (course outline)**

Please see the course outline at the end of this document

# **Part 4: Financial and Student Impact**

**Financial Impact Analysis**

Describe the financial impact of the proposed course, including: Instructional costs; workload (both FT and PT faculty and classified staff); physical space requirements (e.g., labs); additional equipment needs; additional fees; any cost reductions

This is a new course that would require some curriculum development during and after the designed deployment in spring 2019 (perhaps as an experimental course, ENSC 299, if necessary); CD funds will be requested with one-time funding to complete development of a full course for launch in 2019-20 or 2020-21. Offered spring only. May be offered every other year, or in conjunction with Biology.

This course would be taught principally by adjunct faculty in either Biology or Environmental Science discipline groups, and would be demand-driven. There are several faculty who can teach this class at this time, and costs would likely be covered by regular general fund budget. As of August 2018, we have received authority to increase the FTE of our Life Science Laboratory Technician from .8 FTE to 1.0 FTE, in part to support increased field work and undergraduate research experiences in our curriculum. This course would be one of the areas in which this staff position would be extremely useful.

**Student Impact Analysis**

Describe the proposed course’s potential impact on students, including: Effect of changes on program requirements, articulations, cost, credit load, avoiding excess credits in transfer, financial aid credit limits, completion, and enrollments; determination of how new/revised courses transfer to four-year schools (please consult with your advisor).

This course would be considered as either a directed elective or requirement of our transfer pathway for Environmental Science majors, and could be an elective for Biology majors. We will consult with Oregon State, University of Oregon, and Lewis and Clark College, all of which have mature environmental studies or science programs. The course would also likely articulate directly to OSU’s double degree in Sustainability.

**Part 5: Degree Requirements Applications (if applicable)**

**If applying for any of the following**, check the appropriate boxes and include your completed degree requirements forms with this course proposal. Go to the [Curriculum Office website](https://www.lanecc.edu/currsched/curriculum-forms) to download the appropriate forms.

[x]  AAOT (Career Technical courses not eligible)

[ ]  Arts & Letters

[ ]  Cultural Literacy

[ ]  Information Literacy

[ ]  Mathematics

[x]  Science /Computer Science

[ ]  Social Sciences

[ ]  Speech/Oral Communication

 [ ]  Health/Wellness/Fitness (all degrees)

 [ ]  Human Relations designation (for AAS degrees and certificates)

 [x]  Sustainability course status (optional)

Course Outline:

Attached

**College Approval (before signing, please see Curriculum Committee recommendations for this course in the committee’s** [**meeting minutes**](https://www.lanecc.edu/currsched/agendas)**)**

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Executive Dean for Academic Affairs Date

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Vice President for Academic & Student Affairs Date