

Submit original with signatures + 1 copy + electronic copy to UAF Governance.

See <http://www.uaf.edu/uafgov/faculty/cd> for a complete description of the rules governing curriculum & course changes.**TRIAL COURSE OR NEW COURSE PROPOSAL****SUBMITTED BY:**

Department	BIOL	College/School	CNSM
Prepared by	Laura Conner	Phone	(907) 474-6950
Email Contact	ldconner@alaska.edu	Faculty Contact	Laura Conner

1. ACTION DESIRED (CHECK ONE): Trial Course ☐ New Course ☒

2. COURSE IDENTIFICATION: Dept **STO** Course # **603** No. of Credits **1**

Justify upper/lower division status & number of credits:

The course will meet for 800 minutes of lecture, equaling 1 credit. It is part of the proposed Graduate Certificate in Science Teaching and Outreach.

3. PROPOSED COURSE TITLE: **Instructional Design**

4. CROSS LISTED? YES/NO **NO** If yes, Dept: Course #

(Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)

5. STACKED? YES/NO **NO** If yes, Dept: Course #

6. FREQUENCY OF OFFERING: **Every spring.**

(Every or Alternate) Fall, Spring, Summer — or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (if approved) **Spring 2014**

RECEIVED
SEP 14 2012

8. COURSE FORMAT:

NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

COURSE FORMAT: (check one) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒ 6 weeks to full semester

OTHER FORMAT (specify)

Mode of delivery (specify lecture, field trips, labs, etc) **Lecture**

9. CONTACT HOURS PER WEEK: ☒ 1 LECTURE hours/weeks ☐ LAB hours/week ☐ PRACTICUM hours/week

Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See <http://www.uaf.edu/uafgov/faculty/cd/credits.html> for more information on number of credits.

OTHER HOURS (specify type)

10. COMPLETE CATALOG DESCRIPTION including dept., number, title and credits (50 words or less, if possible):

STO 603 Instructional Design 1 credit

Course overview

This graduate seminar course will address important components of course planning and instructional design that reflect best practices in science teaching. This course focuses on the overall design of courses, the integration of the various components of a course, the development and implementation of summative assessments and syllabus construction. The course format will consist of reading and discussion, seminars and workshops.

Governance

9/26/12 TLP

11. COURSE CLASSIFICATIONS: (undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

H = Humanities ☐ N = Natural Science ☐ S = Social Sciences ☐

Will this course be used to fulfill a requirement for the baccalaureate core? ☐ YES ☒ NO

IF YES, check which core requirements it could be used to fulfill:

O = Oral Intensive, Format 6 ☐ W = Writing Intensive, Format 7 ☐ Natural Science, Format 8 ☐

12. COURSE REPEATABILITY:

Is this course repeatable for credit? ☐ YES ☒ NO

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

How many times may the course be repeated for credit? TIMES

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course? CREDITS

13. GRADING SYSTEM:

LETTER: ☒ PASS/FAIL: ☐

RESTRICTIONS ON ENROLLMENT (if any)

14. PREREQUISITES

Graduate standing

These will be required before the student is allowed to enroll in the course.

RECOMMENDED

Classes, etc. that student is strongly encouraged to complete prior to this course.

15. SPECIAL RESTRICTIONS, CONDITIONS

16. PROPOSED COURSE FEES

\$

Has a memo been submitted through your dean to the Provost & VCAS for fee approval? Yes/No

17. PREVIOUS HISTORY

Has the course been offered as special topics or trial course previously? Yes/No

No

If yes, give semester, year, course #, etc.:

18. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

No budget impact is anticipated; the costs are limited to faculty salaries and minimal administrative costs (copying, etc.). Dr. Richard Boone, Professor of Biology and Wildlife, will teach the course as part of his regular workload. No impacts on facilities and/or space is anticipated.

19. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (ffklj@uaf.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No

Yes

☒

Karen Jensen, the Library Collection Development Officer, was contacted on August 27th, 2012 about the Graduate Certificate in Science Education and Outreach. We determined that the collections contain sufficient journal subscriptions in science education to support these efforts. In addition, many of the required course books (National Research Council) for the certificate are freely available as pdf files.

20. IMPACTS ON PROGRAMS/DEPTS

What programs/departments will be affected by this proposed action?

Include information on the Programs/Departments contacted (e.g., email, memo)

This course will be open to all science and engineering graduate students, and is envisioned as a required course for the proposed Scientific Teaching and Outreach Program. Any science or engineering graduate student can take the course, regardless of whether or not they are enrolled in the certificate program.

21. POSITIVE AND NEGATIVE IMPACTS

Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.

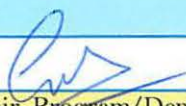
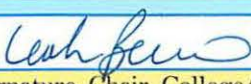
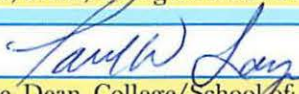
This course is envisioned as part of a package of courses in the proposed Graduate Certificate in Science Teaching and Outreach. Completion of this certificate will better prepare science graduate students for the responsibilities of faculty and other professional positions, and is expected to make them more competitive in the job market.

JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.

This seminar explores methods for course design at the university level and how these methods can be applied to the design of other educational settings. Emphasis is placed on design methods that align with best practices as demonstrated by research. This course is intended for graduate students in STEM fields who have an interest in learning how to design and implement courses. This course is a component of the Graduate Certificate in Science and Engineering Teaching and Outreach, but is open to graduate students in a degree program in CNSM, SFOS, and Engineering whether or not they are participating in the certificate program. The focus here is on the structure of an entire course, syllabus writing, and appropriate selection of course components. This is a complement to Scientific Teaching (STO 666), which focuses on the design and implementation of individual learning activities within a course and the development of a teaching philosophy statement, but does not address overall course design.

APPROVALS:

	Date	Sept 14, 2012
Signature, Chair, Program/Department of: Biology + Wildlife		
	Date	9/25/2012
Signature, Chair, College/School Curriculum Council for: CNSM		
	Date	9/25/12
Signature, Dean, College/School of: CNSM		
	Date	
Signature of Provost (if applicable)		

Offerings above the level of approved programs must be approved in advance by the Provost.

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

	Date	
Signature, Chair, UAF Faculty Senate Curriculum Review Committee		

ADDITIONAL SIGNATURES: (If required)

	Date	
Signature, Chair, Program/Department of:		

	Date	
Signature, Chair, College/School Curriculum Council for:		

	Date	
Signature, Dean, College/School of:		

**STO 603
Instructional Design
Spring 2014**

This syllabus and schedule are subject to change. Any changes will be announced in class.

Instructor(s):

<p>Name: Richard Boone Email: rdboone@alaska.edu Office: 305A Bunnell Building Office phone: 474-7682 Office hours: TBA</p>
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Credits: 1

Meeting Time and Location: TBA

Course Materials:

- Primary literature will be assigned for each week. Articles are available through the library's on-line journals.
- You will be expected to prepare and share materials for courses that you teach, particularly any course that you are currently working with.

Course Description:

This graduate seminar course will address important components of course planning and instructional design that reflect best practices in science teaching. This course focuses on the overall design of courses, the integration of the various components of a course, the development and implementation of summative assessments and syllabus construction. The course format will consist of reading and discussion, seminars and workshops.

More about the course:

This seminar explores methods for course design at the university level and how these methods can be applied to the design of other educational settings. Emphasis is placed on design methods that align with best practices as demonstrated by research. This course is intended for graduate students in STEM fields who have an interest in learning how to design and implement courses. This course is a component of the Graduate Certificate in Science and Engineering Teaching and Outreach, but is open to graduate students in a degree program in CNSM, SFOS, and Engineering whether or not they are participating in the certificate program. The focus here is on the structure of an entire course, syllabus writing, and appropriate selection of course components. This is a complement to Scientific Teaching (STO 666), which focuses on the design and implementation of individual learning activities within a course and the development of a teaching philosophy statement, but does not address overall course design. The course format is a mixture of discussions, workshops and seminars. If the course is over-enrolled, priority will be given to graduate students taking this course as part of the certificate program.

Course Purpose:

Our goal is to prepare you to design your own quality courses and strengthen your professional resume. Well-designed courses, although they take time and effort to plan, ultimately make the learning experience better for students and help things run more smoothly for the instructor. This course aims to help graduate students improve their skills in course design, learn what is expected for university level courses, and prepare them for careers that may have a strong teaching component to them. Although this

course will emphasize the design of university-level courses, it will also address ways in which the key elements of course design can be applied to the design of courses at other levels and for other audiences.

Course Goals

By the end of the semester, you will be able to:

1. **Construct a course syllabus.** This is a document that has a specific format and must include certain items. Although specific format and requirements vary from school to school, there are some elements that are fairly universal. We will look at how a syllabus sets the tone for a course and how it can promote student learning and engagement. As part of this, students will have to consider how the various components of a course (e.g. lecture, lab, discussion, homework) fit together and how course goals and outcomes can be best addressed by each component.

2. **Write course goals and student learning outcomes** that address both content and skills and would be appropriate for a course syllabus. Students should be able to explain how course goals and outcomes should be influenced by goals and learning outcomes at the department and university level.

3. **Thoughtfully select various types of learning opportunities** (e.g. lecture activities, labs, field trips, discussions, homework, etc.) **and integrate them into a complete and effective course** that provide students with opportunities to learn and practice what they need to know and be able to do in order to meet the course goals and learning outcomes.

4. **Write summative assessment questions** in a variety of formats, including multiple choice, multiple response, essay, short answer and matching. Write questions that effectively target different levels of understanding, ranging from knowledge to evaluation. Evaluate and revise questions for use on assessments. Critique questions as to whether they effectively test a target concept at the intended level.

5. **Use information gained through learning activities and assessments to evaluate student learning and the efficacy of the instructional tools utilized.** Revise the course and its components to effectively respond to this information.

Specific Student Learning Outcomes

- construct a syllabus for a course or other learning venue that is based in best practices as established by research (e.g. “backward design”).
- write well-constructed course goals and testable student learning outcomes that address essential understandings and skills for inclusion in a course syllabus.
- integrate a variety of learning opportunities, such as lecture activities, homework assignments, labs, fieldtrips, discussions, etc., into a complete course that provides students multiple opportunities to meet key goals and learning outcomes.
- identify strengths of various types of learning opportunities and describe how to implement each effectively in the context of a whole course.
- write effective summative assessment questions in various formats (e.g. multiple choice, multiple response, short answer, essay, etc.) and addressing a variety of levels of outcome mastery.
- evaluate student responses to summative and formative assessment questions to determine student progress toward meeting learning goals and outcomes and to evaluate the efficacy of various instructional techniques used.

Grading: Syllabi, assessment questions, presentations, participation, and reading assessments will be graded according to the following scale: 100-90% = A, 89% = A-, 88% = B+, 87-80% = B, 79% = B-, 78% = C+, 77-70% = C, 69% = C-, 68% = D+, 67-60% = D, 59% = D-, <59% = F.

Course Policies:

Attendance: Active participation in each class is expected. Lecture participation points cannot be made up. Make-up of reading assessments is granted solely at the discretion of the instructors. Students are allowed 2 excused absences per semester with no impact on their final grade. Additional absences (three

or more) will decrease the final grade by one step per absence (e.g. from a A- to a B+ or from a B+ to a B).

Academic Honesty: Students are required to follow UAF's policies on academic honesty. These are readily available through UAF's website (www.uaf.edu). Unfamiliarity with the policies is not considered an acceptable reason for violating them. In particular, plagiarism of any type will not be tolerated. Any instances of academic dishonesty will be acted on by the instructors, and will result in a grade of zero on that work. It may also result in the student receiving an F in the course and forwarding of the incident to the appropriate university personnel for further action.

Disabilities: Students with disabilities are welcome in this class. If you work with Disabilities Services, please inform the instructors at the beginning of the course so that the appropriate accommodations can be made for you.

Grading Scheme:

Item	Portion of Final Grade
active participation in and preparation for weekly discussions	25%
performance on weekly reading assessments	25%
assessment questions for use in the student's own teaching, with reflection on how these can be used to assess teaching method efficacy as well as student understanding*	25%
course syllabus (for formal or informal course, as appropriate)*	25%

*If this item fails to score a B or higher on the rubrics used to assess performance, additional revision and resubmission may be required. Rubrics will be provided to students in advance of these assignments. The revised work will also be graded according to the rubric and the appropriate grade assigned.

Schedule for Spring 2014, STO 603: Instructional Design

Week	Topic	Due at start of class
1	What makes up a course? What is a syllabus? Relationship between syllabus and course design, key features of an effective syllabus.	<ul style="list-style-type: none"> • evaluation of two syllabi
2	Writing a syllabus I: general requirements for syllabi. Course goals, learning outcomes and assessment methods	<ul style="list-style-type: none"> • reading on syllabi • reading on goals & outcomes & their usefulness
3	Writing a syllabus II: choosing course components that support goals and learning outcomes	<ul style="list-style-type: none"> • course goals and learning outcomes for syllabus
4	Writing a syllabus III: consideration of student diversity and the creation of an inclusive class	<ul style="list-style-type: none"> • completed reading on diversity and on disabilities
5	How to use peer evaluation & feedback effectively. Peer evaluation of syllabus draft.	<ul style="list-style-type: none"> • complete syllabus draft • reading on peer evaluation
6	Choosing summative assessments to quantify achievement of outcomes: various types of assessment and their design	<ul style="list-style-type: none"> • bring examples of good summative assessments to class • reading on summative assessment
7	Writing effective summative assessments I: papers, presentations, projects and their rubrics	<ul style="list-style-type: none"> • reading on rubrics • reading on paper and project design • revised syllabus to turn in
8	Writing effective summative assessments II: exams: multiple choice questions I	<ul style="list-style-type: none"> • bring an exam to class • readings on question writing
9	Peer evaluation of multiple choice questions (clicker presentations for discussion)	<ul style="list-style-type: none"> • bring 15 minute section of class that includes clicker questions
10	Writing effective summative assessments II: exams: other questions types	<ul style="list-style-type: none"> • reading on writing exam questions
11	Peer evaluation of additional exam questions	<ul style="list-style-type: none"> • write 10 exam questions – mix of types
12	Interpreting assessment results I: quantifying student achievement of goals and outcomes; look at how the exam questions students wrote address this	<ul style="list-style-type: none"> • reading on concept inventories • bring revised exam questions
13	Interpreting assessment results II: using assessment results to revise teaching	<ul style="list-style-type: none"> • reading on reflective teaching • additional syllabus revisions if needed
14	Wrap-up & special topics	<ul style="list-style-type: none"> • TBA