

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		College/School	
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  Course #  No. of Credits

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:

4. CROSS LISTED? YES/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  If yes, Dept:  Course #

6. FREQUENCY OF OFFERING:   
(Every or Alternate) Fall, Spring, Summer — or As Demand Warrants

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

**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)

9. CONTACT HOURS PER WEEK:  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 692 Current Topics in Scientific Teaching 1 credit**

**Course overview**

This graduate seminar course explores current trends in science education at the pre-college and college levels. Topics may include diversity, technology, active learning, and others. The course will rely on readings from the primary literature and discussion.

RECEIVED

SEP 14 2012

Dean's Office

College of Natural Science & Mathematics

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** STO 666 or STO 601

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 ☒ Yes

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

Although this course has not been previously offered as a 693 or 694 course, it has been offered as BIOL692, CASE seminar (open to GK-12 CASE fellows, in the fall of 2010, 2011, and 2012. We have made changes to the original syllabus.

**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. Christa Mulder, Professor of Biology and Wildlife, will teach the course as part of her regular workload. No impacts on facilities and/or space is anticipated.

**19. LIBRARY COLLECTIONS**

Have you contacted the library collection development officer (jfkj@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 27<sup>th</sup>, 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 an optional course for the proposed Scientific Teaching and Outreach Program (MATH 600 or PHYS 605 may be substituted). 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.*

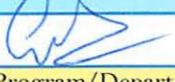

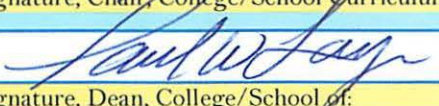
This course is envisioned as part of a package of courses in the proposed Graduate Certificate in Science Teaching and Outreach. Completion of this certificate will better prepare science graduate students for the responsibilities of faculty and other professional positions, and is expected to make them 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 will allow students to delve deeply into the literature and wrestle with topics related to current trends in scientific teaching. This course is a part of the proposed Graduate Certificate in Science Teaching and Outreach. The certificate will make graduate students better teacher and communicators of their science. These skills will help raise the quality of undergraduate instruction at UAF by arming Teaching Assistants with teaching training. The graduate students themselves will benefit by becoming increasingly competitive on the job market after graduation, and will become better science ambassadors to the public.

## APPROVALS:

	Date	Sept 14, 2012
Signature, Chair, Program/Department of:	Biology and 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:		



**ATTACH COMPLETE SYLLABUS (as part of this application).**

Note: syllabus must follow the guidelines discussed in the Faculty Senate Guide <http://www.uaf.edu/uafgov/faculty/cd/syllabus.html>. The department and campus wide curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course change will be denied.

**SYLLABUS CHECKLIST FOR ALL UAF COURSES**

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

**1. Course information:**

- ☐ Title, ☐ number, ☐ credits, ☐ prerequisites, ☐ location, ☐ meeting time  
(make sure that contact hours are in line with credits).

**2. Instructor (and if applicable, Teaching Assistant) information:**

- ☐ Name, ☐ office location, ☐ office hours, ☐ telephone, ☐ email address.

**3. Course readings/materials:**

- ☐ Course textbook title, ☐ author, ☐ edition/publisher.  
☐ Supplementary readings (indicate whether ☐ required or ☐ recommended) and  
☐ any supplies required.

**4. Course description:**

- ☐ Content of the course and how it fits into the broader curriculum;  
☐ Expected proficiencies required to undertake the course, if applicable.  
☐ Inclusion of catalog description is *strongly* recommended, and  
☐ Description in syllabus must be consistent with catalog course description.

**5. ☐ Course Goals (general) and ☐ Student Learning Outcomes (more specific)**

**6. Instructional methods:**

- ☐ Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

**7. Course calendar:**

- ☐ A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

**8. Course policies:**

- ☐ Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

**9. Evaluation:**

- ☐ Specify how students will be evaluated, ☐ what factors will be included, ☐ their relative value, and  
☐ how they will be tabulated into grades (on a curve, absolute scores, etc.)

**10. Support Services:**

- ☐ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

**11. Disabilities Services:**

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials.

- ☐ State that you will work with the Office of Disabilities Services (208 WHIT, 474-5655) to provide reasonable accommodation to students with disabilities."

**Seminar: Current Topics in Scientific Teaching**  
**STO 692, 1 credit**

**Meeting times:** TBA  
**Meeting place:** TBA  
**Prerequisites:** Graduate standing; STO 666 or STO 601 recommended

**Instructors:**

Dr. Christa Mulder  
410A Irving 1  
474-5493

Office hours: M & Wed 10:30-11:30 or by appointment

**COURSE SYLLABUS**

*Course overview*

This graduate seminar course explores current trends in science education at the pre-college and college levels. Topics may include diversity, technology, active learning, and others. The course will rely on readings from the primary literature and discussion.

*Course structure*

This course will use readings from the primary literature to explore current trends in science teaching. Students are required to lead one class period per semester. Students should select articles and verify with the instructor at least one week prior to the class period that they lead in order to give other students time to read the materials. Participation is critical and will comprise a large percentage of the final grade.

Upon completion of the course, students will be able to do the following:

- Describe current trends in science teaching
- Discuss approaches to classroom teaching issues such as diversity
- Examine, observe, analyze, and reflect on current trends in the literature

*Recommended Textbook*

There is no textbook for the course. Readings will be drawn from the primary literature and/or book chapters. A full list is not provided, because many topics and readings will be student-selected. Example readings might include:

Gaffney, J. D. H., Richards, E., Kustus, M. B., Ding, L., and Beichner, R., 2008. Scaling Up Educational Reform. *Journal of College Science Teaching* 37: 48-53.

Gobeaud, Karleen, 2006. Assessment practices in college science: trends from the National Study of post-secondary faculty. In: *Handbook of College Science teaching*, eds. J. Mintzes and W.J. Leonard. NSTA, Washington, D.C.

Hill, C., Corbett, C, St. Rose, A, 2010. Why so Few? Women in Science, Engineering, Technology, and Mathematics. AAUW, Washington, D.C.

Miyake, A., Kost-Smith, L.E., Finkelstein, n.D., Pollock, S.J., Cohen, G.L., and Ito, T.A. 2010. Reducing the Gender Achievement Gap in College Science: A Classroom Study of Values Affirmation. *Science* 330:1234-1237.

### *Grading*

Grading is pass/fail (a pass requires a score of  $\geq 80\%$ )

Item	Portion of Final Grade
Active participation in and preparation for weekly discussions	50%
Student presentation	50%

### *Attendance Policy*

I expect you to attend class and participate. Science education research has demonstrated that students who take an active role in their learning learn more and retain that knowledge longer. In other words, participation will help you get the most out of the course.

### *Plagiarism/Academic Honesty*

Disciplinary action may be initiated in cases of plagiarism, cheating, and/or academic dishonesty. Please refer to the student code of conduct:

[http://www.uaf.edu/catalog/current/academics/regs3.html#Student\\_Rights](http://www.uaf.edu/catalog/current/academics/regs3.html#Student_Rights)

### *Student Support*

Students with special needs or concerns can contact Student Support Services (474-6844). Please let us know at the beginning of the semester if you will require accommodations due to a documented disability, and we will work with you in conjunction with the Office of Disability Services (203 WHIT, 474-7043).

### *Sample Course schedule*

<b>Date</b>	<b>Topic</b>
Sept. 6	Introduction
Sept. 13	Diversity
Sept. 20	Diversity 2: Gender issues
Sept. 27	Trends in assessment
Oct. 4	Trends in assessment
Oct. 11	Active Learning
Oct. 18	Active Learning
Oct. 25	Technology in the classroom
Nov. 1	Technology in the classroom
Nov. 8	"Big ideas" in science
Nov. 15	"Big ideas" in science
Nov. 22	<i>No class, Thanksgiving</i>
Nov. 29	Educational Reform
Dec. 6	Educational Reform