TRIAL COURSE OR NEW COURSE PROPOSAL

SUBMITTED BY:

Department: GPMSL
Prepared by: Jennifer Reynolds
Email Contact: jrenolds@alaska.edu

College/School: SFOS
Phone: x5871
Faculty Contact: Jennifer Reynolds

1. ACTION DESIRED
   (CHECK ONE):
   □ Trial Course
   □ New Course  X

2. COURSE IDENTIFICATION:

   Justify upper/lower division status & number of credits:
   Lower division: Students will need some familiarity with the oceans, but
   no prior knowledge of geology is expected. Instead, some basics of geology
   will be introduced as background and context for the case studies that are
   the focus of the course. Thus this course is suitable for the 200-level with
   minimal prerequisites.
   3 credits: Classes will be a combination of 3 hrs/wk lecture and
discussion, with reading and other preparation outside of class.

   Dept  MSL  Course #  F215  No. of Credits  3

3. PROPOSED COURSE TITLE:
   Marine Geological Drama and Undersea Catastrophes

4. To be CROSS LISTED?
   YES/NO  No
   If yes, Dept: ______  Course # ______
   NOTE: Cross-listing requires approval of both departments and deans involved. Add lines at end of form for additional required
   signatures.

5. To be STACKED?
   YES/NO  No
   If yes, Dept: ______  Course # ______
   How will the two course levels differ from each other? How will each be taught at the
   appropriate level?:
   Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic
   and Advising Committee. Creating two different syllabi—undergraduate and graduate versions—will help emphasize the different
   qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are
   sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being
   overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the
   students taking the course. Typically, if either committee has qualms, they both do. More info online — see URL at top of this page.

6. FREQUENCY OF OFFERING:
   □ Spring of Odd-numbered Years
   □ Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) — or
   As Demand Warrants
   Spring AY2015-16

7. SEMESTER & YEAR OF FIRST OFFERING
   (AY2013-14 if approved by 3/1/2013; otherwise
   AY2014-15)

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 all that apply)
   □ 1 □ 2 □ 3 □ 4 □ 5  X □ 6 weeks to full
   semester

   OTHER FORMAT (specify)
   Mode of delivery (specify
   lecture, field trips, labs, etc)
9. CONTACT HOURS PER WEEK:

| 3 | 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/uaflgov/faculty-senate/curriculum/course-degree-procedures/guidelines-for-computing/](http://www.uaf.edu/uaflgov/faculty-senate/curriculum/course-degree-procedures/guidelines-for-computing/) for more information on number of credits.

OTHER HOURS (specify type)  

10. COMPLETE CATALOG DESCRIPTION including dept., number, title, credits, credit distribution, cross-listings and/or stacking (50 words or less if possible):

Example of a complete description:

FISH F487 W, O Fisheries Management  
3 Credits  Offered Spring  
Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; ENGL F414; FISH F425; or permission of instructor. Cross-listed with NRM F487. (3+0)

MSL F215 Marine Geological Drama and Undersea Catastrophes  
3 credits  
Case studies of geological events that disrupt the ocean environment serve as an introduction to geological oceanography and its connections to other aspects of ocean and Earth history.  
Prerequisites: MSL111X; or MSL211; or permission of the instructor.

11. COURSE CLASSIFICATIONS: Undergraduate courses only. Consult with CLA Curriculum Council to apply S or H classification appropriately; otherwise leave fields blank.  

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<tr>
<td>H = Humanities</td>
<td>S = Social Sciences</td>
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Will this course be used to fulfill a requirement for the baccalaureate core? If YES, attach form. 

YES:  
NO:  
X

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

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<tr>
<td>O = Oral Intensive, Format 6</td>
<td>W = Writing Intensive, Format 7</td>
<td>X = Baccalaureate Core</td>
</tr>
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</table>

11A. Is course content related to northern, arctic or circumpolar studies? If yes, a "snowflake" symbol will be added in the printed Catalog, and flagged in Banner.  

YES:  
NO:  
X

12. COURSE REPEATABILITY:  

Is this course repeatable for credit?  

YES:  
NO:  
X

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?

<table>
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<tr>
<th>TIMES</th>
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If the course can be repeated for credit, what is the maximum number of credit hours that may be earned for this course?

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

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13. GRADING SYSTEM: Specify only one. Note: Changing the grading system for a course later on constitutes a Major Course Change – Format 2 form.  

LETTER:  

PASS/FAIL:  

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<tr>
<td>X</td>
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Restrictions on Enrollment (if any)

14. Prerequisites
ML11X or MSL211 or permission of the instructor
These will be required before the student is allowed to enroll in the course.

15. Special Restrictions, Conditions

16. Proposed Course Fees
$0
Has a memo been submitted through your dean to the Provost for fee approval? Yes/No

17. Previous History
Has the course been offered as special topics or trial course previously? Yes/No
If yes, give semester, year, course #, etc.: To be offered as a Special Topics course in Spring 2015.

18. Estimated Impact
What impact, if any, will this have on budget, facilities/Space, faculty, etc.
Current resources are sufficient for offering the course. It is not intended for videoconferencing and
will not need a classroom with videoconferencing equipment. The course will be part of the instructor’s
approved teaching workload.

19. Library Collections
Have you contacted the library collection development officer (kijensen@alaska.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 ☑ X
Contacted K. Jensen on July 30. No problem with library resources.

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)
The course will benefit SFOS/GPMSL by expanding course options in the Minor in Marine Science.
There is no duplication with courses in the Department of Geosciences. Some of their undergraduate
majors/minors may be interested in taking this course and they will help advertise it. (Phone
conversation with the department chair, P. McCarthy, on July 31.)

21. Positive and Negative Impacts
Please specify positive and negative impacts on other courses, programs and departments resulting from the
proposed action.
See above for positive impacts. No negative impacts are anticipated.

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 course is designed for the new Minor in Marine Science. It will broaden lower-division course options
in the minor, which has few 200-level courses at present. This course will also add an aspect of marine
science, geological oceanography, that is not currently addressed at an undergraduate level outside of the
MSL introductory courses (ML111X, MSL211).

The Department of Geosciences (formerly Geology & Geophysics) does not offer courses on marine
gleology. We anticipate that some of their undergraduate students may be interested in this new MSL
course.
APPROVALS: Add additional signature lines as needed.

Signature, Chair, Program/Department of: 
Date 9/24/14

Signature, Chair, College/School Curriculum Council for: 
Date 9/24/14

Signature, Dean, College/School of: 
Date 9/25/14

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

Signature of Provost (if above level of approved programs)
Date

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

Signature, Chair
Date

Faculty Senate Review Committee: ___Curriculum Review ___GAAC
___Core Review ___SADAC

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking)

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). This list is online at:  
http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/uaf-syllabus-requirements/ 
The Faculty Senate 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 
(or changes to it) may 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 (see #6)

6. □ Student Learning Outcomes (more specific)

7. 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.).

8. 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.

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

10. 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.) □ Publicize UAF regulations with regard to the grades of "C" 
    and below as applicable to this course. (Not required in the syllabus, but is a convenient way to publicize this.) Link to 
    PDF summary of grading policy for “C”; 

11. Support Services: 
    □ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

12. Disabilities Services: Note that the phone# and location have been updated, http://www.uaf.edu/disability/  
    The Office of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have 
    equal access to the campus and course materials. 
    □ State that you will work with the Office of Disabilities Services (208 WHITAKER BLDG, 474-5655)to provide 
    reasonable accommodation to students with disabilities.

5/21/2013
INSTRUCTOR
Dr. Jennifer Reynolds, Associate Professor
Office hours: Mon and Wed 1-3 pm or by appointment
Office location: 209B O'Neill
Office phone: 474-5871
jreynolds@alaska.edu

COURSE DESCRIPTION
Case studies of geological events that disrupt the ocean environment serve as an introduction to geological oceanography and its connections to other aspects of ocean and Earth history.

Case studies covered in this course include both sudden geological events, on a time scale of minutes to weeks, and slow-motion events on a geologic time scale. Both can have dramatic or even catastrophic effects on the oceans and marine life.

Sudden geologic events include: Submarine volcanic eruptions. Tsunamis caused by earthquakes or submarine landslides. Submarine landslides caused by gas hydrate decomposition or sector collapse of volcanoes into the sea. Flooding of the Black Sea basin.

Slow-motion events include: The Archean oxygen crisis. Opening the Tasmanian Gateway. Closing the Isthmus of Panama. Sequential growth and drowning of Hawaiian islands.

Geological concepts will be introduced as part of the background and context for each case study. These concepts will include aspects of plate tectonic theory, the shape of the ocean basins, sediments, the paleoceanographic record, and physical/chemical/biological interactions between geological materials and the water part of the oceans. Tools and methods of geologic research will also be discussed.

This is a 3-credit core course designed for lower-division undergraduate students. It is offered as part of the Minor in Marine Science, but the course is also suitable for students with an interest in geology and other Earth science.

Prerequisites: MSL111X (The Oceans) or MSL211 (Introduction to Marine Science I) or permission of the instructor. Prior knowledge of geology is not assumed, but students are expected to have a basic understanding of oceanography. Students with a background in geology instead of oceanography are invited to contact the instructor.

COURSE GOALS
Geological oceanography is one of the four core subjects in oceanography; the others are physical, chemical, and biological oceanography. This course will introduce students to topics in geological oceanography via the use of case studies. Oceanography is an inherently inter disciplinary field, and these case studies are also intended as a way to teach students about the interaction of geological activity with other aspects of the oceans such as ocean circulation, tsunamis, seawater composition, seabed ecology, and the evolutionary history of marine species.
STUDENT LEARNING OUTCOMES

Students will gain an appreciation of (a) active geological processes in the oceans; (b) the concept that the oceans function as a system including geological as well as physical, chemical and biological aspects; and (c) the capacity of rocks and sediments to record the history of the oceans. Through case studies, students will understand selected topics in greater depth. Students will also gain experience in analyzing, discussing, and writing about scientific topics.

COURSE READINGS / MATERIALS:

Reading assignments and course materials will be drawn from a variety of sources. They will be distributed electronically, through Blackboard and/or the department’s ftp site.

The one required text for this course (available in paperback) is


ASSIGNMENTS

Exercises: Four homework exercises outside of class will be assigned to improve student understanding of geological concepts and methods. These exercises will cover construction and interpretation of contour maps of the seafloor; plate motion; use of presence and absence of species in sediments to date those sediments (biostratigraphy); and evidence of geological events in marine sediments.

Discussions/presentations: Students will be asked to do short presentations (5 minute) on supplementary readings, as part of class discussions. These will be scheduled in advance and will be connected to the short essays.

Essays: Students will write 1-2 page essays on the case studies and related topics, approximately six during the semester. The purpose of the essays is both investigation/discussion of the course content and experience in writing on scientific topics. Essays are expected to reflect the student’s thinking on the subject, supported by content from course materials and individually assigned readings. Essays may be returned to the student for revision before grading.

Plagiarism is strictly prohibited and may result in a failing grade on the paper and/or the course. See the section below on Student Code of Conduct.

GRADING

Letter grades will be assigned. The grading scale is not curved. Late assignments and make-up exams must be approved by the instructor in advance, except in cases of unanticipated and unavoidable absence (e.g., illness or emergency).

Assignments: 30%. Homework exercises will be graded on complete and accurate answers, evidence that the student understands the material, and timely submission. Class presentations will be graded on whether the content fulfills the assignment and on effective communication with the audience.

Class participation: 20%. Students are expected to complete reading assignments on time and to contribute to thoughtful discussions of class topics. Class participation will include any Blackboard discussions. Class attendance will be part of this grade.

Midterm and final exams: 25% each.
STUDENT CODE OF CONDUCT

Students are expected to conduct themselves according to the standards described in the UAF Student Code of Conduct (see catalog: http://www.uaf.edu/catalog/current/academics/regs3.html). The expectations for academic honesty and integrity are particularly emphasized.

Students who are unsure about plagiarism and proper attribution of the work of others are encouraged to consult with the instructor. Often the most difficult type for students to avoid is plagiarism via paraphrasing. The UAF library system provides guidance and examples (http://library.uaf.edu/is101-plagiarism).

STUDENT SUPPORT SERVICES

The Writing Center (http://www.uaf.edu/english/writing-center/) offers tutorial and fax-tutorial assistance with grammar, composition, and style. Students connected to the UAF network (Ethernet or wireless on-campus or through VPN off-campus) have access to UAF Library catalogs, electronic journal holdings, and interlibrary loan resources. Miscellaneous support services (e.g., tutorial services, instruction in mathematics skills, academic advising, mentoring and personal support, cultural and social engagement, use of laptop computers, labs, and other technology resources, and direct financial assistance to qualified low-income participants) are available through UAF Student Support services (http://www.uaf.edu/sss/).

DISABILITIES SERVICES

The instructor welcomes students with disabilities, and will work with them to provide reasonable accommodation. Contact the instructor with any concerns.

Office of Disabilities Services: 208 WHITAKER BLDG, 474-5655

CALENDAR (Spring 2015), subject to modification:

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<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Jan 15</td>
<td>Introduction, overview of marine geology</td>
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<tr>
<td>Week 2</td>
<td>Jan 20</td>
<td>Background on mid-ocean ridges, submarine volcanic eruptions</td>
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<td>Jan 22</td>
<td>Case 1: Submarine eruptions at Axial Seamount, Juan de Fuca Ridge</td>
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<tr>
<td>Week 3</td>
<td>Jan 27</td>
<td>Case 1 continued, Homework exercise #1 due, contour maps of the seafloor</td>
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<td>Jan 29</td>
<td>Background on subduction zone earthquakes, tsunamis</td>
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<td>Week 4</td>
<td>Feb 3</td>
<td>Case 2: Great Sumatra-Andaman Earthquake and tsunami, 2005</td>
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<td>Feb 5</td>
<td>Background on seabed gas hydrates (clathrates) and submarine landslides</td>
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<td>Week 5</td>
<td>Feb 10</td>
<td>Case 3: Storegga Slide in the North Sea</td>
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<td>Feb 12</td>
<td>Case 4: landslide-generated tsunami in Papua New Guinea, 1998</td>
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<td>Week 6</td>
<td>Feb 17</td>
<td>Background on sector collapse of volcanoes and submarine landslides</td>
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<td>Feb 19</td>
<td>Case 4: Sector collapse in the Hawaiian Islands and elsewhere.</td>
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<td>Week 7</td>
<td>Feb 24</td>
<td>Case 4 continued Homework exercise #2 due, plate motion.</td>
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<td>Feb 26</td>
<td>Discussion, review for midterm exam</td>
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Week 8  Mar 3  Midterm exam
Mar 5  Case 5: The Archean oxygen crisis

Week 9  Mar 10  Background history of the Black Sea, Mediterranean Sea, ocean drilling
Mar 12  Case 6: Flooding of the Black Sea basin

Mar 17, 19  Spring Break

Week 10  Mar 24  Case 6 continued
Mar 26  Case 6 continued

Week 11  Mar 31  Contrast the Black Sea with other marginal basins
Apr 2  Background on hotspot volcanoes and plate tectonics

Week 12  Apr 7  Case 7: Sequential growth and drowning of Hawaiian volcanic islands
Apr 9  Background on plate tectonics and marine geology around Antarctica

Week 13  Apr 14  Case 8: Opening the Tasman Gateway
Homework #3 due, biostratigraphy.
Apr 16  Background on geology of Central America, erosion and sedimentation

Week 14  Apr 21  Case 9: Closing the Isthmus of Panama
Apr 23  Background on the geological time scale, Earth history

Week 15  Apr 28  Case 10: The Anthropocene (geological epoch of humans)
Homework #4 due, evidence of geologic events in marine sediments.
Apr 30  Discussion, review for final exam.

May 8  Final Exam 10:15 am - 12:15 pm.

READING ASSIGNMENTS

Due Jan 20: This should be review for students who have taken MSL111 or MSL211.

Due Jan 22:
• NOAA PMEL web site on Axial Seamount: http://www.pmel.noaa.gov/coi/axial_site.html
  Be sure to view the submarine videos.
  Review the 2013 expedition web site: http://axial2013.blogspot.com/

Due Feb 3:
Due Feb 10:

Due Feb 12:

Due Feb 19:

Due March 5:

Due March 12:

Due March 24:

Optional:

Due April 7:
Due April 14:
- Exon, N. et al. (2000), The Opening of the Tasmanian gateway drove Cenozoic paleoclimatic and paleoceanographic changes: Results of Leg 189. JOIDES Journal 26(2), pp. 11-17.

Due April 21:

Due April 28:
- Zalasiewicz, J. et al. (2008), Are We Now Living in the Anthropocene? GSA Today 18(2), pp. 4-8.