1. ACTION DESIRED (check one): Trial Course [ ] New Course [X]

2. COURSE IDENTIFICATION: Dept GE Course # 322 No. of Credits 3

   Justify upper/lower division status & number of credits:
   This course will be offered to junior undergraduate level to comprehend and acquire knowledge on Sedimentary processes and their implication for Engineering Analyses. The course will help students as a pre-requisite for the Field Methods course as well as most senior level courses in GE program.

3. PROPOSED COURSE TITLE: Engineering Sedimentology

4. CROSS LISTED? (Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)
   NO [X] If yes, Dept: 

5. STACKED? (Every or, Alternate) Fall, Spring, Summer — or As Demand Warrants
   NO [X] If yes, Dept: 

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

7. SEMESTER & YEAR OF FIRST OFFERING (if approved) Spring 2010

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 [X] 6

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

9. CONTACT HOURS PER WEEK:
   3 LECTURE hours/week [X] LAB hours/week PRACTICUM hours/week

   Note: # of credits are based on contact hours. 500 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):
GE F322  Engineering Sedimentology
3 Credits  Offered Every Spring or As Demand Warrants
Sediment types, textures, sedimentary structures, and stratigraphy of sedimentary rocks; their origin through weathering, erosion, transportation, and deposition mechanics, and diagenesis; and engineering construction in sedimentary formations. Prerequisites: GE 261, PHYS 212X. (3+0)

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.)

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</thead>
<tbody>
<tr>
<td>Humanities</td>
<td>Natural Science</td>
<td>Social Sciences</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>O</th>
<th>W</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Intensive, Format 6</td>
<td>Writing Intensive, Format 7</td>
<td>Natural Science, Format 8</td>
</tr>
</tbody>
</table>

12. COURSE REPEATABILITY:

Is this course repeatable for credit?  
YES X 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: X  PASS/FAIL:

14. PREREQUISITES

GE 261, PHYS 212X

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

17. PREVIOUS HISTORY

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

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

18. ESTIMATED IMPACT

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

None

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 X Yes  Not Required.
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)

None.

21. POSITIVE AND NEGATIVE IMPACTS

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

The course will help the GE students as a pre-requisite for the senior level and graduate courses. There is no negative impact of the course.

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.

Sedimentology is a REQUIRED course for the Geological Engineering (GE) students. Previously, the Department of Geology and Geophysics (DGG) offered it every year. Recently, this course has been moved by the DGG as an elective course for their students and the course is offered every alternate spring semester. As a result, the GE students are unable to fulfill this requirement as needed or on a timely manner. Based on a discussion with Prof. Paul Layer of DGG, the GE program is proposing to offer the course permanently. Please see attached email from Prof. Layer.

APPROVALS:

Signature, Chair, Program/Department of: Date

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

Signature, Dean, College/School of: 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

Signature, Chair, UAF Faculty Senate Curriculum Review Committee Date
<table>
<thead>
<tr>
<th>ADDITIONAL SIGNATURES: (If required)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Signature, Chair,</strong></td>
</tr>
<tr>
<td><em>Program/Department of:</em></td>
</tr>
<tr>
<td><strong>Date</strong></td>
</tr>
<tr>
<td><strong>Signature, Chair, College/School Curricul</strong></td>
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<tr>
<td><em>Council for:</em></td>
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<td><strong>Date</strong></td>
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<td><strong>Signature, Dean, College/School</strong></td>
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<td><em>of:</em></td>
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<td><strong>Date</strong></td>
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</table>
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

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 (203
      WHIT, 474-7043) to provide reasonable accommodation to students with
      disabilities.”
Department of Mining and Geological Engineering  
Geological Engineering Program  

GE 322 (Required)  

Engineering Sedimentology  
Spring 2010  

Offered Every Spring or As Demand Warrants  

Catalog Description: Sediment types, textures, sedimentary structures, and stratigraphy of sedimentary rocks; their origin through weathering, erosion, transportation, and deposition mechanics, and diagenesis; and engineering construction in sedimentary formations. (Prerequisite: GE 261, PHYS 211X) (3+0 Credits).

Text:  
2. Class Notes as required

Course Objectives: To educate students in origin, processes, mechanics, and formation of sedimentary rocks and its applications in water reservoir construction, groundwater resource development, tunnel excavation, coal mine strata control, and buried structures in permafrost.

Schedule: Lecture -- TBA

Instructor: Debasmita Misra (Office: 307 DUCK, 907.474.5339, debu.misra@alaska.edu)  
Office Hours: As Posted or By Appointment

Grading Policy: 2 Hour Exams (100 points each), Homework (20 points each), and 1 Report & Presentation (100 points)

A >85%; 75% ≤ B < 85%; 65% ≤ C < 75%; 50% ≤ D < 65%; F <50%.

Topics Covered:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction &amp; Stratigraphic Data</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>2</td>
<td>Sedimentary Structures</td>
<td>Chapter 6</td>
</tr>
<tr>
<td>3</td>
<td>Process of Sedimentation &amp; Entrainment</td>
<td>Chapter 6</td>
</tr>
<tr>
<td></td>
<td>Sediment Transport by Wind</td>
<td>Chapters 7, 16</td>
</tr>
<tr>
<td>4</td>
<td>River Networks and Hydraulic Geometry</td>
<td>Chapters 5, 13</td>
</tr>
<tr>
<td></td>
<td>Channel Flow and Sediment Transport</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Turbidity Currents and Turbidities</td>
<td>Chapter 8</td>
</tr>
<tr>
<td></td>
<td>Glaciers and Glacial Deposits</td>
<td>Chapters 10, 17</td>
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<tr>
<td>6</td>
<td>Wave and Tidal Theories</td>
<td></td>
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<tr>
<td></td>
<td>Marine Deposits</td>
<td>Chapters 7, 15</td>
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<tr>
<td>7</td>
<td>Spring Break</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1st Hour Exam</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Project Proposal Submission</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stratigraphic Mapping and Well Logging</td>
<td>Class Handouts</td>
</tr>
<tr>
<td>9</td>
<td>Engineering Applications – Construction Materials</td>
<td>Class Handouts</td>
</tr>
<tr>
<td>10</td>
<td>Engineering Applications – Landslides</td>
<td>Class Handouts</td>
</tr>
<tr>
<td>11</td>
<td>Engineering Applications – Earth Dam and Reservoir Siltation</td>
<td>Class Handouts</td>
</tr>
<tr>
<td>12</td>
<td>Engineering Applications – Tunneling in Weak Rock</td>
<td>Class Handouts</td>
</tr>
<tr>
<td>13</td>
<td>Engineering Applications – Groundwater Movement &amp; Resource Development</td>
<td>Class Handouts</td>
</tr>
<tr>
<td>14</td>
<td>Engineering Applications – Buried Structures Underlain by Permafrost</td>
<td>Class Handouts</td>
</tr>
<tr>
<td>15</td>
<td>Project Presentation and Report Submission</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2nd Hour Exam</td>
<td></td>
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</tbody>
</table>
Course Policies:

- Students are expected to read the material assigned each week prior to attending the lecture.
- Homework will be assigned each week after a week’s lecture, which is due a week from the date of assignment.
- Late submission of deliverables will not be accepted unless the student was sick and can produce proof of sickness, had loss of immediate family members, or was traveling on university business (e.g., athletes, professional presentations in conferences, etc.).
- Students are expected to be ethical in conduct, professional in demeanor and expected to adhere to the University of Alaska Honor Code (You may find this code at: http://www.uaf.edu/catalog/current/academics/regs3.html#Student_Conduct).

Physical and Learning Disabilities: If you have a physical or learning disability, please advise the course instructor of any special consideration necessary by the beginning of the second class so that attempts to accommodate you according to the American Disabilities Act can be made. Your request for accommodation must be accompanied by a written statement of your disability from an appropriate authority. For information on the disability services on campus, please visit the following web site: http://www.uaf.edu/chc/disability.html

Student Support Services: CEM computer technicians are located in the Duckering building room 153 (contact phone: 474-6146). They can help with issues related to software and hardware problems in the computer lab (310 Duckering). Blackboard support is available through UAF OIT helpdesk. The instructor is available for any other support required during the offering of this course. Ms. Jessica Potrikus, Office Manager of Mining and Geological Engineering Department is available for departmental support in Room 301 Duckering (474-7338).

Contribution to Professional Component: The course emphasizes fundamentals of sedimentology and the applications of such knowledge in engineering projects.

Course Outcomes: This course is arranged towards meeting the educational outcomes set forth by the Department of Mining and Geological Engineering.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Role of GE 322</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) an ability to apply knowledge of mathematics, science, and engineering</td>
<td>The class lectures are designed to inspire students in comprehending problems related to sedimentation process, deposits and environments. Effects of the characteristics of sedimentary strata on engineering projects are analyzed.</td>
</tr>
<tr>
<td>(g) an ability to communicate effectively.</td>
<td>The course requires a mini-report for each of the homework assignments. Students are required to present orally the term projects and written reports at the end of the semester.</td>
</tr>
<tr>
<td>(h) The broad education necessary to understand the impact of engineering solutions in a global and societal context</td>
<td>In the second half of the semester, case histories related to engineering constructions in sedimentary formations around the world and their impacts to the communities nearby will be studied, and the possible solutions will be discussed.</td>
</tr>
</tbody>
</table>
Debu,

I have talked to Paul McCarthy and Mike Whalen about this and we have some thoughts. To clarify something in the document. Sedimentology (GEOS 421, 3 credits) was NEVER offered on an annual basis by the department (at least not in the last 20 years). It is not a required course for us and was ALWAYS primarily a service class for GE students. Sed/Strat (GEOS 322, 4 credits) has been offered annually and is required for our students, and is currently the requirement in the catalog for GE. We were not very supportive of having our Sedimentology alternate with one you teach, as the emphases would be different and student numbers would be weak for us. As we discussed, I propose three options.

1. You keep the GEOS 322 requirement as in the 2007-2008 catalog. We teach this every year, and you can be guaranteed that it will be taught. As we discussed, you feel that this class is not the appropriate one for your students. If that is the case, I understand and you should change your catalog.

2. We keep GEOS 421 Sed as an alternate year service course for GE, and you devise alternate schedules so that students don't fall behind with prerequisites for classes. This ensures that we have 7-8 students per offering (what our dean wants to see in upper division classes) and we ease some of the teaching load in your department. There is no way that I can accommodate GEOS 421 every year in faculty workloads especially with low enrollment (less than about 5 per year). If you prefer this option, we are willing to renumber this class to the 300 level. I believe we are next scheduled to teach it in Spring 2010.

3. We drop GEOS 421 totally and you devise a new class (as you have proposed) that you teach EVERY YEAR. This way the students get a consistent content that is geared toward your program. However, this puts more teaching load on your program, but if that is what you need to do, then we understand.

Based on what we discussed, it seems that option 3 is the best all around. It does mean that there will be less interaction between GE students and our department, however I think having a consistent offering of a course is the best for the students.

Sincerely

Paul Layer
Chair, Department of Geology and Geophysics

At 02:07 PM 5/9/2008 -0800, you wrote:

Dear Drs. McCarthy and Whalen,

I simply wanted to run by this proposal lest it develops into any future heart burns.

About a couple of days back, I had a discussion with Prof. Paul Layer about the need of Sedimentology for our GE students. It is a required course for them and is a pre-requisite for our senior level courses. Currently, your program offers it only during alternate spring semesters and I learnt that it was only an elective course for the Geology students. Since, the course is required by the GE students, it will only be prudent for us to offer it during the semester it is not offered by your program. Prof. Layer agreed to such a proposal.
Based on this discussion and in consultation with all GE faculty members, I have prepared the attached proposal. This is simply a preliminary draft of the syllabus and other components of the syllabus will be added before it is sent off for approval. I need you to review the proposal and send me any comments or concerns you might have before I send it off to the Faculty Senate.

I look forward to your kind cooperation in this matter as it will only help all of us in the long run.

Best Regards,
Debasmita Misra
Associate Professor
Geological Engineering
College of Engineering and Mines
University of Alaska Fairbanks
P.O. Box 755800
Fairbanks, AK 99775-5800
(907) 474-5339 - Tel
(907) 474-6635 - Fax
debu.misra@uaf.edu