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:

<table>
<thead>
<tr>
<th>Department</th>
<th>Mining and Geological Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared by</td>
<td>Rajive Ganguli</td>
</tr>
<tr>
<td>Email Contact</td>
<td><a href="mailto:ffrg@uaf.edu">ffrg@uaf.edu</a></td>
</tr>
</tbody>
</table>

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

2. COURSE IDENTIFICATION:
   - Dept MIN 380
   - No. of Credits 1

   Justify upper/lower division status & number of credits:
   Ore body modeling requires knowledge of basic geology. Typically, such knowledge is acquired at the lower levels. The course, which teaches the principles and issues of computer modeling of ore bodies, is one-third of the component of MIN 482: Computer Aided Mine Design-VULCAN, a 3 credit course.

3. PROPOSED COURSE TITLE:
   Computer Aided Orebody Modeling

4. CROSS LISTED?
   - NO
   - If yes, Dept:

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

5. STACKED?
   - NO
   - If yes, Dept:

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

7. SEMESTER & YEAR OF FIRST OFFERING (if approved)
   Fall 2009

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) The first third (33%) of MIN 482 is being proposed to be offered as MIN 380. MIN 380 and 482 are to be offered jointly. This course will end at the 1/3 rd mark of the Fall semester.

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

9. CONTACT HOURS PER WEEK:
   2 LECTURE hours/weeks
   3 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) Note that the course is (2+3) but only for 4.5 weeks duration.
MIN F380 Computer Aided Orebody Modeling

1 Credit

The course teaches students how to develop an orebody model from drillhole data in a computer-aided design environment. The data is converted into a drillhole database, following which, a 3D visual model is developed. Basic tools covered include concepts of computer-aided design, database error checking and triangulation. (0.7 + 1)

Prerequisites: GEOS 332 or instructor permission.
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.

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)

No impact on any department.

21. **POSITIVE AND NEGATIVE IMPACTS**

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

I believe this course positively impacts Geological Engineering and Geology programs since it complements some of their course offerings. The course is intended for non-MIN students. Therefore, any enrollment in this class will result in higher student credit hours generated by MIN program. Also, see next section.

**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.

UAF currently does not offer a course on computer aided orebody modeling. CAD-based orebody modeling is now the norm in the mining industry. While mining engineering students are required to take MIN 482 (and hence obtain the necessary skill since the content of this course is a component of MIN 482), students from other majors, especially geology and geological engineering cannot do the same as they do not meet the pre-reqs for MIN 482. This course allows anyone with a background of geology to obtain this useful knowledge.
**APPROVALS:**

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<tr>
<th>Date</th>
<th>Signature, Chair, Program/Department of:</th>
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<tbody>
<tr>
<td>Date</td>
<td>Signature, Chair, College/School Curriculum Council for:</td>
</tr>
<tr>
<td>Date</td>
<td>Signature, Dean, College/School of:</td>
</tr>
<tr>
<td>Date</td>
<td>Signature of Provost (if applicable)</td>
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*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)**

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</tbody>
</table>
Description  The course teaches students how to develop a orebody model from drillhole data in a computer aided design environment. The data is converted into a drillhole database, following which, a 3D visual model is developed. Basic tools covered include concepts of computer aided design, database error checking and triangulation (1 credit).

Goal  This course is designed to familiarize students with VULCAN, a comprehensive mine design package to store, manage, model, and display exploration data.

Outcomes  After taking the course, the student shall be able to (in VULCAN):
- Understand basic CAD tools such as drawing lines and polygons and managing layers.
- Develop a drillhole database from spreadsheet drillhole files
- Check for errors in drillhole information
- Display drillhole data in 3D
- Develop geologic sections and a orebody model

Prerequisites  GEOS 332 orPermission of instructor

Textbook  Handouts and VULCAN help files.

Grades  Homework (2 Total): 50%  Project (1 Total): 50%
Plus/minus system of grading is followed. Grading will be based on absolute scores.
Policy: Latework will not be accepted.

Course content (Approximate duration in weeks in parenthesis)

1. Introduction to 3D Design (0.5)
   a. Create and manage lines, polygons, layers
2. Development of Drillhole Database (1.5)
   a. Create database definition
   b. Import file
   c. Error check
3. Orebody modeling (2.5)
   a. Displaying drillholes
   b. Creating sections
   c. Triangulation
   d. Basic computations

Disability Services: I will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.