Syllabus for Geology 1045
Freshman Seminar: Minnesota’s Geological History
Spring 2007

Instructor - Jim Miller
Office Hours - Thursdays 12-2, or by appt.
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Website – www.d.umn.edu/~mille066

Teaching Assistant – Sally Goodman
Office Hours - by appt.
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Phone - 726-7935
E-mail – good0491@d.umn.edu

Class Meeting Time/Location: Tuesday and Thursday, 11:00-12:15 PM, Room 207 Chemistry;
A room schedule is posted at the room entrance listing other times that the room will be
available for homework exercises. The room can be accessed in the evenings (after 4:30 PM)
by getting a key from the Kirby Information Desk.

Computer/Internet Access: Room 108 Heller Hall (after hours, get key from Kirby Information
Desk)

Class Period Routine: Most class periods will involve several types of activities. Class will
open with a brief question-and-answer period about the reading assignment or any previous
lecture or exercise. Typically, there will be a 20-40 minute lecture period on the day's topic
(lectures will be given as Powerpoint presentations that can be downloaded from the class
website; see below). Some class sessions will be devoted to hands-on investigations that
illustrate the topic for the day. Some exercises may require more time than can be
accommodated in class, in which case, they will be assigned as homework. For exercises
involving internet access, you may use the geology computer lab (Rm 108HH) during class
time or later.

Class Text: There is no required textbook for this class. Various articles, handouts, and exercise
descriptions will be distributed throughout the term and will be available on the class website
(see below). Students are encouraged to maintain a 3-ring binder, which should be brought to
each class.

Class Website: Digital copies of all handout materials, homework assignments, and the
Powerpoint lecture presentations can be downloaded from the class website:
www.d.umn.edu/~mille066/Teaching/MNGeology07.html

Attendance/Participation: Since most information will be conveyed through lecture, discussion,
and hands-on exercises rather than through a textbook, it is critical that you attend each and
every class and that you actively participate. A significant part of your grade (16%) will be
based on attendance and participation. Absences will be excused only for medical reasons;
missed assignments will be expected to be made up.

Homework: A homework assignment will be given approximately once per week. Assignments
may include reflections of assigned reading, observations and interpretations of lab exercises
or demonstrations, or literature/internet research of a topic. Typically, homework
assignments should take no more than 2 hours to complete. Homework will be due a week
from the day that it is assigned. Homework turned in late will have 15% deducted from the
assigned points, unless permission to turn it in late is requested and given in advance of the
due date.
Exams/Reports: Knowledge of the subject matter will be assessed by one mid-quarter exam and two reports. The midquarter exam will be based on background information presented in the first one-third of the course. Students will be allowed to self correct errors in this exam for half credit. For one of the two reports, you will compile "rock stories" that creatively tell the story of Minnesota's geologic history. For the final report, you will be asked to give an oral and written report on a geological formation of your choosing. The oral reports will be given during the last four class sessions.

Field Trip: Field trips are the seminal learning experiences of any geology class (and the most fun!). This class will require two 2-day field trips. The first will be a trip be held Saturday and Sunday, April 14 & 15, and will visit geologic sites in central and southwestern Minnesota. The second trip will be Saturday and Sunday, April 28 & 29, and will visit geologic sites in northeastern Minnesota. Students are required to attend both field trips. Only serious reasons for not attending (e.g., inflexible job requirements, sickness, death in the family, …) will be considered and student will be expected to produce a fairly rigorous report in lieu of missing a field trip. If you have any schedule conflicts or special requirements, please see me as soon as possible. Students will be required to pay a fee of up to $25 per field trip for meals and camping costs (exact amount to be determined).

Grading: Final grades will be based on the following percentage breakdown:

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<thead>
<tr>
<th>Points</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>60</td>
<td>16%</td>
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<tr>
<td>100</td>
<td>28%</td>
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<td>50</td>
<td>14%</td>
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<tr>
<td>360</td>
<td>100%</td>
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Up to 20 extra credit points will be available for various projects throughout the course.

Letter grades will be based on the following range of total class points and percentage scores:

- **A** (Outstanding) 360-342 100-95%
- **A-** (Outstanding) 342-324 95-90%
- **B+** (Above Average) 324-306 90-85%
- **B** (Above Average) 306-288 85-80%
- **B-** (Above Average) 288-270 80-75%
- **C+** (Average) 270-252 75-70%
- **C** (Average) 252-234 70-65%
- **C-** (Average) 234-216 65-60%
- **D+** (Below Average) 216-198 60-55%
- **D** (Below Average) 198-180 55-50%
- **F** (Failing) <180 <50%
- **I** Incomplete An incomplete grade will be assigned if a failing grade is due to the midterm exam or reports not being completed or more than 5 homework exercises not turned in.

**Students with Disabilities:** Individuals who have any disability, either permanent or temporary, which might affect their ability to perform in this class are encouraged to inform the instructor at the beginning of the semester. Adaptations of methods, materials, or evaluations may be made as required to provide equitable participation.
Topic Schedule for Minnesota’s Geological History  
Spring 2007

1/16 Introduction, Field Geology-Reading the Rocks

The Language of the Earth
1/18 The Language of Igneous Rocks
1/23 The Language of Sediment and Sedimentary Rocks
1/25 The Language of Metamorphic Rocks
1/30 The Rock Cycle and Plate Tectonics
2/1 Plate Tectonics
2/6 Geophysics - Indirect Geological Evidence
2/8 Geologic Maps – Documenting the Story
2/13 Geologic Time and Age Dating
2/15 Midterm Exam

The Geologic Story of Minnesota
2/20 The Early Archean Rocks of the Minnesota River Valley
2/22 The Neoarchean Granite-Greenstone Terrane of Northern Minnesota
2/27 The Paleoproterozoic Penokean Mountains of Central Minnesota
3/1 The Mesoproterozoic Midcontinent Rift of Northeastern Minnesota
3/6 No Class
3/8 The Paleozoic “Layer Cake” Geology of Southwestern Minnesota
3/12-16 Spring Break
3/20 The Mesozoic Rocks of Western Minnesota
3/22 The Glacial Deposits and Landforms of Minnesota and its 10,000 Lakes
3/27 Guest Lecturer; Rock Stories Report Due

Natural Resources of Minnesota
3/29 Stewarding the World’s Mineral Resources
4/3 Metallic Ore Deposits of Minnesota
4/5 Industrial Minerals of Minnesota
4/10 No Class
4/12 Water Resources, Prep for Field Trip

4/14-15 Field Trip to SW Minnesota
4/17 No Class
4/19 Careers in Geology
4/24 Minnesota Rock Formation Oral Reports
4/26 Minnesota Rock Formation Oral Reports, Prep for Field Trip

4/28-29 Field Trip to NE Minnesota
5/1 Minnesota Rock Formation Oral Reports
5/3 Minnesota Rock Formation Oral Reports