ARIZONA STATE UNIVERSITY

GENERAL STUDIES PROGRAM COURSE PROPOSAL COVER FORM

Courses submitted to the GSC between 2/1 and 4/30 if approved, will be effective the following Spring.

Courses submitted between 5/1 and 1/31 if approved, will be effective the following Fall.

(SUBMISSION VIA ADOBE.PDF FILES IS PREFERRED)

DATE 13 February 2012

1. ACADEMIC UNIT: School of Earth and Space Exploration

2. COURSE PROPOSED: GLG 101 Introduction to Geology I (Physical) 3
   (prefix ) (number) (title) (semester hours)

3. CONTACT PERSON: Name: Prof. Steven Semken Phone: 480-965-7965
   Mail Code: 1404 E Mail: semken@asu.edu

4. ELIGIBILITY: New courses must be approved by the Tempe Campus Curriculum Subcommittee and must have a regular course number. For the rules governing approval of omnibus courses, contact the General Studies Program Office at 965–0739.

5. AREA(S) PROPOSED COURSE WILL SERVE. A single course may be proposed for more than one core or awareness area. A course may satisfy a core area requirement and more than one awareness area requirements concurrently, but may not satisfy requirements in two core areas simultaneously, even if approved for those areas. With departmental consent, an approved General Studies course may be counted toward both the General Studies requirement and the major program of study. (Please submit one designation per proposal)

   Core Areas
   Literacy and Critical Inquiry–L □
   Mathematical Studies–MA □ CS □
   Humanities, Fine Arts and Design–HU □
   Social and Behavioral Sciences–SB □
   Natural Sciences–SQ X □ SG □ (When both GLG 101 and GLG 103 are taken)

   Awareness Areas
   Global Awareness–G □
   Historical Awareness–H □
   Cultural Diversity in the United States–C □

6. DOCUMENTATION REQUIRED.
   (1) Course Description
   (2) Course Syllabus
   (3) Criteria Checklist for the area
   (4) Table of Contents from the textbook used, if available

7. In the space provided below (or on a separate sheet), please also provide a description of how the course meets the specific criteria in the area for which the course is being proposed.

Please refer to attached documentation.

CROSS LISTED COURSES: X No □ Yes; Please identify courses: ____________________________

Is this a multisection course?: □ No X Yes; Is it governed by a common syllabus? No

Prof. Steven Semken, Associate Director
Chair/Director (Print or Type) Chair/Director (Signature)

Date: 13 February 2012

Rev. 1/94, 4/95, 7/98, 4/00, 1/02, 10/08
ARIZONA STATE UNIVERSITY
GENERAL STUDIES PROGRAM COURSE PROPOSAL COVER FORM

Courses submitted to the GSC between 2/1 and 4/30 if approved, will be effective the following Spring.
Courses submitted between 5/1 and 1/31 if approved, will be effective the following Fall.

(SUBMISSION VIA ADOBE.PDF FILES IS PREFERRED)

DATE 13 February 2012

1. ACADEMIC UNIT: School of Earth and Space Exploration

2. COURSE PROPOSED: GLG 103 Introduction to Geology I - Laboratory 1
   (prefix ) (number) (title) (semester hours)

3. CONTACT PERSON: Name: Prof. Steven Semken  Phone: 480-965-7965
   Mail Code: 1404  E Mail: semken@asu.edu

4. ELIGIBILITY: New courses must be approved by the Tempe Campus Curriculum Subcommittee and must have a regular course number. For the rules governing approval of omnibus courses, contact the General Studies Program Office at 965–0739.

5. AREA(S) PROPOSED COURSE WILL SERVE. A single course may be proposed for more than one core or awareness area. A course may satisfy a core area requirement and more than one awareness area requirements concurrently, but may not satisfy requirements in two core areas simultaneously, even if approved for those areas. With departmental consent, an approved General Studies course may be counted toward both the General Studies requirement and the major program of study. (Please submit one designation per proposal)

Core Areas

- Literacy and Critical Inquiry–L
- Mathematical Studies–MA
- Humanities, Fine Arts and Design–HU
- Social and Behavioral Sciences–SB

Awareness Areas

- Global Awareness–G
- Historical Awareness–H
- Cultural Diversity in the United States–C
- Natural Sciences–SQ

6. DOCUMENTATION REQUIRED.
   (1) Course Description
   (2) Course Syllabus
   (3) Criteria Checklist for the area
   (4) Table of Contents from the textbook used, if available

7. In the space provided below (or on a separate sheet), please also provide a description of how the course meets the specific criteria in the area for which the course is being proposed.

Please refer to attached documentation.

CROSS LISTED COURSES: ☒ No ☐ Yes; Please identify courses:

Is this a multisection course?: ☐ No ☒ Yes; Is it governed by a common syllabus? ☒ No

Prof. Steven Semken, Associate Director
Chair/Director (Print or Type)  Chair/Director (Signature)

Date: 13 February 2012

Rev. 1/94, 4/95, 7/98, 4/00, 1/02, 10/08
ASU–[SQ] Criteria

Part I. – For all quantitative [SQ] natural sciences core area courses, the following are critical criteria and must be met:

The following bullets cite and briefly discuss some specific examples from physical geology textbooks and course materials that meet ASU’s SQ criteria. Abbreviations for the three most widely used GLG101 textbooks are as follows: Marshak, 2nd Edition (M); Reynolds, 3rd Edition (R); and Tarbuck, 9th Edition (T). The abbreviation for the ASU GLG103 lab manual is Johnson (J). The abbreviation for the each book is followed by a number indicating the chapter within that book. Typical syllabi for GLG101 and GLG103 are appended to the end of this document.

A. Course emphasizes the mastery of basic scientific principles and concepts.
   - All GLG101 textbooks and classes address many of the important scientific principles and concepts. These concepts include states of matter, gravity, stress and strain, transfer of heat, radioactive decay, theories about atomic particles, chemical reactions, structure of crystalline solids, the Periodic Table, propagation of waves through solid and liquid materials, and the role of evolution in life.
   - These classes also cover the scientific principles and concepts that are unique to geology, such as the principles of superposition, crosscutting relationships, and faunal succession, and the concepts of erosion, deposition, metamorphism, magmatism, and landscape evolution.

B. Addresses knowledge of scientific method.
   - All GLG101 textbooks have chapters or sections specifically written on the scientific method (M1, R2, T1), and instructors cover it as a separate topic and/or continuously integrate it into discussions of various concepts, such as development and testing of the theories of continental drift and plate tectonics (M3, R3, T2). In addition, GLG101 teaches and applies principles of geologic reasoning, such as reconstructing geologic histories and the Principle of Uniformitarianism. One commonly used textbook (R) has sections in every chapter describing how we scientifically investigate the processes covered in that chapter. That book ends every chapter with an investigation where students apply geologic concepts and approaches to solve an authentic geologic problem.
   - In GLG103, the scientific method is integrated and explicitly discussed in reconstructing geologic histories and in using landscape features to test one’s location on a topographic map (if I am here, then I should see this, but instead I see this) (J2).

C. Includes coverage of the methods of scientific inquiry that characterize the particular discipline.
   - GLG101 lectures and GLG103 labs encourage students to observe natural features and phenomena and use these observations to classify features, to infer what processes are occurring, and to reconstruct geologic histories (M12, R2, T1).
   - GLG101 classes provide students with scientific data sets and have students make interpretations from these data. Examples include using maps showing the distribution of earthquakes to locate boundaries between tectonic plates (R1) and using data about groundwater contamination to infer the source of the contamination (R17, J14).
   - The GLG103 labs at ASU are totally structured to have students experience geologic inquiry in a manner authentic to the discipline. Through the first eight weeks of the semester, students make their own observations about minerals, rocks, geologic
structures, and landscapes in order to reconstruct the geologic history of a virtual place and to assess how the geology might impact people living in this place. These processes, and the skills employed, are precisely those used by many professional geologists. Similarly authentic approaches are followed at the various community colleges.

D. Addresses potential for uncertainty in scientific inquiry.

- In GLG101, many topics are presented from the standpoint of what remains to be known about the topic and what data are yet needed to arrive at a more founded interpretation. Examples include the role of CO2 in climate change, prediction of earthquakes and volcanic eruptions, the recurrence of floods, deciphering the geology of other planets, estimates on the age of the earth, and the sometimes large uncertainties in constraining the age of a geologic event via bracketing older and younger events that can be dated (M, R, T various chapters).

- In GLG103, student groups present their results from the virtual world and compare those with the results of other groups, illustrating that using the same data, different people can reach different conclusions and emphasize different aspects (J7).

E. Illustrates the usefulness of mathematics in scientific description and reasoning.

- GLG101 textbooks and lectures integrate calculations and numeric graphs in various subjects which, depending on the specific book and the instructor, may include all or some of the following:
  - calculate the geothermal gradient (increase in temperature with depth within the earth) (in-class exercise);
  - calculate, using proportional reasoning, where different geologic events occur on the geologic timescale (in-class exercise);
  - using calculations and graphs to infer the depths required to form diamonds (in-class exercise);
  - calculate the age of a rock if given isotopic abundances and the half life for the radioactive isotope (M12, R9, T9; and in-class exercise);
  - use differences in the velocity of seismic waves to determine the distance from the seismic station to the earthquake (M10, R12, T11);
  - determine the average recurrence interval for earthquakes from real data about past events on the San Andreas fault (in-class exercise);
  - determine discharge for a river from the cross sectional area and the velocity of the water, and determine the recurrence interval of floods by plotting their discharge calculations on a graph (M17, R16, T16);
  - determine a best-fit through data points to estimate river discharge and the probability of flooding (M17, R17);
  - calculate rates of groundwater flow, after determining the source of groundwater contamination and the distance the contamination has traveled (in-class exercise);
  - calculate the rates of seafloor spreading from a map showing the ages of the seafloor (in-class exercise); and
  - use isotopic ratios as a proxy for past changes in climate (M20, R13).

- In GLG103, students use topographic data points to plot topographic profiles, calculate gradients from measured distances and changes in elevation on topographic maps, determine possible locations for a road using calculated topographic gradients, calculate the thicknesses of geologic units from a geologic cross section that they themselves
construct, plot the position of an aqueduct that meets specific requirements for its gradient, and contour levels of groundwater contamination from analyzed data (J8).

F. Includes weekly laboratory and/or field sessions that provide hands-on exposure to scientific phenomena and methodology in the discipline, and enhance the learning of course material.

- GLG103 is designed to be nearly all hands-on activities (J3-6), with lecturing by the lab instructor limited to a short introduction to the sequence of activities for that lab. In this class, students, for both real and virtual places, make their own observations of mineral and rock samples, plot the locations of these samples from 3D perspectives of the landscape, produce their own topographic map (using a small model in the lab), construct their own geologic map and geologic cross section of the virtual world using interactive landscape panoramas on the computer, and reconstruct the geologic history of the virtual world using their own observations of the minerals, rocks, geologic structures, relative ages of the rocks and structures, and distribution of rock units on the surface. Students do their own descriptions of sedimentary and igneous rocks, and from these descriptions interpret the possible environments in which the rocks formed, and then determine the factors that might influence where their group would site a settlement in the virtual world. Students in the online GLG103 class do the same exercise but base their descriptions on photographs of rocks and minerals, rather than actual samples.

- All GLG103 students that take the in-person lab attend a field trip to Tempe Butte (“A” Mountain) where they observe the rocks and geologic structures, and draw contacts between the different geologic units. From these data, they draw a geologic cross section of the area and infer the geologic history of the area. (J11). Students in the online GLG103 class do the same exercise but as a virtual field trip.

- All GLG103 students visit, during lab time, the ASU Map Collection where they use topographic and geologic maps to study the geology and landscapes of their hometown. They submit a written report presenting their observations and interpretations (J12). Students in the online GLG101 class visit the library on their own time or complete the assignment using online maps.

- In GLG101, many instructors run field trips, which are either optional or are available for extra credit, to local geologic sites, such as Papago Park, the South Mountains, and other localities.

G. Students submit weekly reports of laboratory experiences for constructive evaluation by the instructor.

- Each week in GLG103, students complete worksheets containing their observations, interpretations, maps that they have constructed, topographic profiles, and geologic cross sections. In addition, students turn in write ups from their Tempe Butte field trip and their hometown geology paper. All of these are graded, as is a short quiz given each lab session.

- GLG101 instructors who run optional field trips usually require students to submit a short write up, summarizing the student’s observations and what the student learned on the trip.

H. Course is general or introductory in nature, ordinarily at lower division level; not a course with great depth or specificity.

- All GLG101 instructors treat the course as a broad survey of the diverse aspects of geology and the underlying physical, chemical, and biological principles. The course covers composition of the earth, formation of rocks, minerals, and geologic structures, diverse earth phenomena such as earthquakes and volcanoes, evolution of landscapes,
processes that occur in the oceans, rivers, and atmosphere, the origin and evolution of life, and the structure and origin of the solar system.

Part II. – At least one of the following additional criteria

A. Stresses understanding of the nature of basic scientific issues.
   • All GLG101 textbooks and classes address many scientific issues related to physics, chemistry, biology, and geology. Physics topics covered include states of matter, gravity, forces, some aspects of basic mechanics (such as movement on inclined surfaces and friction), deformation of solid materials, transfer of heat, radioactive decay, atomic particles, and propagation of waves through solid and liquid materials.
   • Chemical topics covered include atomic structure and the role of electrons in chemical bonding, chemical reactions in liquids and solids, melting and crystallization of rocks and minerals, structure of crystalline solids, precipitation of minerals from hydrous fluids, dispersion of contaminants in groundwater, and concentration of chemical elements in mineral deposits (M5, R4, T3). One widely used textbook (R) uses the Periodic Table as the conceptual framework in which to discuss chemical elements, atomic structure, minerals, and bonding.
   • Biological concepts are covered mostly in the context of fossils, evolution, and the origin of life. These topics include theories on the origin of life, characterization of species and larger groups of organisms, changes in life over time and possible factors driving this evolution, extinction of species, ecology on land and beneath the seas, requirements for preservation of organic remains, and the role of humans, plants, and other organisms in the generation and evolution of Earth’s atmosphere and oceans (M13, R9).

B. Develops appreciation of the scope and reality of limitations in scientific capabilities.
   • Geology is one of the best sciences for demonstrating the limitations on fully understanding natural systems and on the problem of incomplete data. Many geologic processes operate on time scales that are either too long or too short for humans to observe directly, so conceptual understanding of geologic systems commonly involves observing different instances of the phenomena, mentally arranging the instances into a likely progression, and interpolating between the steps. Reconstructing geologic events also faces a limitation in the amount of data because nearly all areas lack complete exposure of rock units on the surface, many geologic relationships are hidden in the subsurface, and large amounts of geologic time are missing in the rock record. As a result, geologic reasoning and problem solving commonly involves major uncertainties and incomplete data (R2).

C. Discusses cost (time, human, financial) and risks of scientific inquiry.
   • All GLG101 textbooks and classes heavily discuss the dangers inherent in living near volcanoes, landslides, and other natural hazards. They also discuss the financial and human costs of building in inappropriate sites, trying to engineer coastlines, rivers, and other natural systems, and exploring the geology of planets and moons in our Solar System.
   • Most textbooks also address the costs of exploring the earth and its natural systems. This is most explicitly discussed in the context of the exploration, extraction, and processing of mineral and energy resources (M14-15, R18-19, T23).

Part III. – SQ courses must also meet these additional criteria

A. Provides a substantial quantitative introduction to fundamental principles governing behavior of matter and energy, in physical or biological systems.
GLG101 textbooks and lectures incorporate presentations of quantitative data about a number of basic physical and chemical processes, including coverage of the following aspects:

- Most GLG101 textbooks discuss the different states of matter (solid, liquid, gas) and physical factors that control in which state a material exists (R4).
- Phase diagrams showing the experimentally determined conditions of temperature and pressure at which geologic materials are solid or liquid. In one widely used book (R), the discussion of the formation of igneous rocks is presented in the context of the P-T phase diagram of melting under dry and wet conditions. In many GLG101 classes, students are given quantitative data and required to construct graphs of solid-melt phase boundaries with the goal of determining whether materials at a given temperature and pressure will be solid or liquid, and how the material will respond to changes in temperature, in pressure, or in both. (in-class exercise).
- Relationships between temperature and pressure as a function of depth within the earth. Most GLG101 books discuss the concept of a geothermal gradient and generally treat how it is calculated (change in temperature/change in depth). Such geothermal gradients are compared to quantitative determinations of conditions of metamorphism (M8). Some instructors provide their students temperature-pressure data points and require the students to determine the metamorphic conditions and to calculate the average geothermal gradient implied by those conditions (in-class exercise).
- The role of density in determining surface elevations according to the Principle of Isostasy. GLG101 students commonly are provided with a simple equation that relates changes in elevation to changes in thickness of continental crust. Students use these data to predict the change in thickness of the crust between Phoenix and Flagstaff (in-class exercise; J2, R11).
- The relationship between force and stress (force/area) and calculations showing the amount in which geologic materials are shortened or lengthened by deformation (M11, R8, T10).
- The velocity with which seismic waves pass through geologic materials. Textbooks provide students graphs of seismic recordings and have students calculate the distance from the epicenter using a time-distance plot (R12).
- Heat flow as expressed in the decrease in elevations away from mid-ocean ridges. Some GLG101 textbooks and instructors have students examine or plot graphs of the depth of oceanic crust and compare this to graphs showing cooling of a heated material as a function of time (M3).

B. Includes a college-level treatment of some of the following topics:

- Atomic and molecular structure – All GLG101 courses cover atomic and molecular structure in appropriate detail, including the Periodic Table (M-Appendix; R4, T3).
- Electrical processes – Briefly discussed by some instructors in the context of bonding, the conduction of electricity by metallic materials, and in the use of electrical methods in exploring the subsurface of the earth (R12 and 18).
- Chemical processes – All GLG101 courses feature many chemical processes, including solid – liquid – gas – phase changes, oxidation-reduction reactions in
weathering, the processes of hydrolysis, dissolution and precipitation in hydrous fluids, melting and crystallization of solids, radioactive decay, and other chemical aspects, including the Periodic Table (M – Appendix, R4, T5).

- Elementary thermodynamics – Briefly discussed by some instructors, mostly in the context of heat flow, melting and solidification of rocks, solid-state phase changes, and stability relations on a phase diagram (M – Appendix).

- Electromagnetics – Discussed by some books and instructors in the context of remote sensing of the earth and other objects, generation of the earth’s magnetic field by electrical currents in the outer core, and the heat budget of the earth as expressed in incoming ultraviolet radiation and outgoing infrared radiation.

- Dynamics and mechanics – Discussed at an appropriate level in the treatment of force and stress in deformation (M11, R8, T10), stress and friction in faulting and in the formation of landslides (R15), driving forces and mechanics of plate tectonics (M3, R3, T2), the role of density in the rise of molten bodies of rock and solid mantle plumes, and forces that drive ocean currents, wind currents, waves, and tides (R13-14).
Click on the title of the course for more details. Each column can be sorted by clicking on the column header.

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<tr>
<th>Course</th>
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<th>General Studies</th>
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<tbody>
<tr>
<td>GLG 101</td>
<td>Introduction to Geology I (Physical)</td>
<td>3</td>
<td>SQ &amp; G</td>
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Basic principles of geology, geochemistry, and geophysics. Rocks, minerals, weathering, earthquakes, mountain building, volcanoes, water, and glaciers. Students must complete both GLG 101 and GLG 103 to receive an SQ (general studies).

Allow multiple enrollments: No
Repeatable for credit: No
Primary course component: Lecture
Grading method: Student Option

Offered by:
New College of Interdisciplinary Arts and Sciences -- Division of Mathematical and Natural Sciences
College of Liberal Arts and Sciences -- School of Earth and Space Exploration
<table>
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<tr>
<td>GLG 103</td>
<td>Introduction to Geology I-Laboratory</td>
<td>3</td>
<td>SQ</td>
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3 hours lab, some field trips. Both GLG 101 and 103 must be taken to secure SQ General Studies credit.

**Allow multiple enrollments:** No  **Primary course component:** Laboratory
**Repeatable for credit:** No  **Grading method:** Student Option

**Offered by:**
- New College of Interdisciplinary Arts and Sciences -- Division of Mathematical and Natural Sciences
- College of Liberal Arts and Sciences -- School of Earth and Space Exploration
## GLG101 INTRODUCTION TO GEOLOGY I

### Syllabus and Lecture Schedule*

**Section (PSF-166)**

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### Course Description:

The Earth is diverse and dynamic, featuring volcanoes, earthquakes, tsunamis, landslides, floods, and so on. As citizens, we want to understand what is going on in our natural world and which aspects directly affect us or are most interesting. Understanding past events helps us comprehend what has happened and begin to predict future events. With the Earth, we examine past events and current natural processes to understand how this past and these processes affect humans. Accordingly, this course examines the processes and materials composing Earth’s physical environment, for example, its landscapes and interior. We will explore topics such as natural hazards and disasters, fossils, energy resources, and much more. To do so, we will learn some underlying principles of the natural world, from small things like the very building blocks of matter (atoms), to large things, like the cause and effect of regional forces that build mountains (e.g., the Himalaya) and make new oceans (e.g., the Red Sea). These processes are active today on Earth, and give rise to earthquakes, volcanoes, and landslides, all of which obviously affect humans. The class will meet every Monday and Wednesday, but not on Fridays. This course is taught using a hybrid approach, partly as a normal lecture in the classroom during our M-W meeting time, and partly as an online course, which you do on your own outside of class. During this time outside of class, you are required to complete online quizzes and investigations assigned for that week. There are online materials to help you complete the investigations and to prepare you for online quizzes.

**Textbook:** *Exploring Geology*, by Reynolds, Johnson, Kelly, Morin, and Carter, 2nd Edition. This is a unique textbook designed to help you learn geologic concepts and processes on your own and to complement what we do in class. Nearly all the information in the book is built around illustrations and photographs, rather than being in long blocks of text. The entire book consists of a series of two-page spreads organized into chapters. Each two-page spread is a self-contained block of information about a specific topic and has a short list indicating what you should be able to do before you leave these pages. The items from these lists, for which you will be held responsible for knowing, are compiled into a *What-To-Know List* that is downloadable from this course’s Blackboard website. The *What-To-Know List* is your guide to what is important, and all online quizzes and in-class exams are derived from this list. If, when studying from the book, you construct your own answer to each item on the *What-To-Know List*, then I predict you will receive an A in the class. Required reading is listed in the right column of the *Lecture Schedule* later on in this document. If you revisit the chapter corresponding to the most recently finished lecture *after* we cover that topic, the material will be best retained. Each two-page spread in the book has a unique number (e.g., 12.4), and these numbers are referenced for online quizzes and other course assignments. Each chapter ends with an investigation concerning a problem associated with a “virtual place”. These investigations are assigned as online homework and are automatically graded by Blackboard.
Course Philosophy and Teaching Method: The greater subject of Physical Geology is as vast and diverse as the natural world around us. Together, we will explore and visualize this dynamic world in a number of ways; in no way will it be a static collection of facts. Accordingly, we will concentrate on understanding natural processes and how we explore and learn things about our planet, rather than terms and factual trivia. We will concentrate on active, inquiry-based learning and will learn how to observe, think about, and understand our place in the natural environment. The critical inquiry and observational skills that we cultivate this semester should be useful in any profession, since they give you an appreciation of how geologic processes in our natural world impact our environment and society. Class time will not simply consist of me repeating via lecture everything that is in the book! It is your responsibility and obligation to complete the required readings prior to quizzes. Class time may be used for clarifying written materials, introducing new material, small-group activities, discussions, independent work projects, and/or identifying and applying principles and concepts, including in-class demonstrations.

Course Expectations: My role in this class is to provide a framework that includes theory, best practices, activities, and assignments for you to utilize in the development of your knowledge, understanding, and skills. I care very much how and what you learn in this class, but I believe that you are responsible for participating in learning from the activities provided. This class requires significant outside preparation and reading. It will be impossible to cover all issues in the textbook during class time. This is partly why we use a hybrid approach in this course.

Attendance: Each student is expected to attend all classes. It is the student's responsibility to inform the instructor of an excused absence as soon as possible. Absences for emergency situations may be excused unofficially by the instructor. Instructor-excused absences must be obtained prior to or on the day of the student's absence. It is the student's responsibility to inform the instructor of an upcoming excused absence as soon as possible. Make ups for such absences will be at the option of the instructor. There will be absolutely no make ups for unexcused absences. Please contact the instructor if you have circumstances arise that conflict with attending class. Please do not contact the instructor after any unexcused absence (re-read this paragraph if necessary).

Lab: In order to receive a laboratory science credit, you must also take the laboratory, GLG103. The laboratory is independent of this class in terms of registration and grades. The lecture and lab complement each other by covering different aspects of the same material. GLG103 can be taken subsequently to GLG101, but ideally should be taken the same semester.

Field Trips: Geology is best seen, learned, and taught outdoors. During the semester, the School of Earth and Space Exploration at ASU offers a field trip for their lab courses (GLG103), which gives you the opportunity to experience geology first hand. However, if there is enough interest, and if it is not too hot, we will consider offering one or two field trips to local mountain ranges to learn about the geology (e.g., South Mountains, Phoenix Mountains, North Mountain, Dreamy Draw Park, etc.). You will receive no points for going on a field trip, but each trip is fun and interesting, and you’ll get some exercise and a chance to be outside.
**Grades:** In this course, your grade is based on points that you earn. There are approximately 820 possible points, which are spelled out below:

<table>
<thead>
<tr>
<th>Point Distribution Summary*</th>
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<tbody>
<tr>
<td>In-Class Exams (5 @ 80 points each)</td>
<td>400</td>
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<tr>
<td>Online Quizzes (14 @ 20 points each)</td>
<td>280</td>
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<tr>
<td>Online Investigations (14 @ 10 points each)</td>
<td>140</td>
</tr>
<tr>
<td>Total Points Possible</td>
<td>820</td>
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</table>

(a) **In-Class Exams (concept sketches):** Every three weeks there will be an in-class exam consisting of two concept-sketch style questions. There are 5 total. **Each of the 5 in-class exams is worth 80 points, for a semester total of 400 points.** In advance of each in-class exam, you will be given a list of 4 to 6 possible concept-sketch questions, and two of these will be on the exam. These possible questions will be developed from the What-To-Know List. You can make up exams only if you have a note from a doctor, a letter from the university regarding some university-sponsored activity, a copy of a jury summons, a police report, or some other document that can be verified. This legitimate proof for why you cannot attend class that day must be provided to the instructor as far in advance of the exam as possible. We have 230 students in this class with very limited TA resources. Thus, make-up exam time slot possibilities will unfortunately be very limited.

(b) **Online Quizzes:** Most weeks, on your own time outside of lecture, you will complete an online quiz that covers information from the textbook and from online materials. **Each of the 14 online quizzes is worth 20 points, for a total of 280 points.** See the Assignment Schedule at the end of this syllabus for due dates. You can use your textbook or your notes to answer these quizzes, but not another person. Each quiz has a time limit of 40 minutes, which will not be enough to look up every answer from scratch during a quiz. In other words, you will need to read the textbook, view online materials, and study your notes before beginning the time-limited online quiz. Use the What-to-Know list as your guide of what to study in preparation for the online quizzes. Some of the quiz questions might relate to assigned readings that are not discussed in lecture; you are thus expected to read all of the assigned reading.

(c) **Online Investigations:** At the end of every chapter in your textbook is an investigation two-page spread, and you will complete 14 of these online using Blackboard during your non-lecture time. **Each investigation is worth 10 points, for a total of 140 points.** You will need to read and refer to the investigation two-page spread in your textbook while completing the online investigation. You can use your textbook and notes when completing these investigations and you can collaborate with other classmates, but please do your own work. Material pertaining to these online investigations will be included in some in-class activities. The Assignment Schedule lists due dates for each online investigation. Late online investigation homework assignments are not accepted. If you experience computer issues doing an assignment, you are responsible for documenting the issue as it happens, and showing this to the TA or the instructor, ASAP.
(d) **In-Class Participation:** During the semester, we will do a small number of extra credit in-class activities centered on the material covered during the lecture. In most cases, you will be able to discuss these activities with your classmates before answering, but in other cases you might be asked to work out the exercise on your own. You may or may not be allowed to use your textbook and notes. Irrespective of the number of questions or problems on the activity, there will be approximately five to ten of these activities worth approximately 2-5 points possible for each in-class activity. These are for extra credit and will not be added into the overall total points available for this course.

**Due Dates:** The above assignments have specifically defined due dates as noted in the Course Schedule and Assignment Schedule later on in this syllabus. It is your responsibility to consult the Lecture Schedule and Assignment Schedule for all due dates. The instructor will not assume the responsibility of reminding you that an assignment is due or that an exam will be given.

**Grade Posting:** All grades will be posted on Blackboard at myasucourses.asu.edu. *You have 7 days after a grade has been posted to dispute an entry.* After the 7-day period, the grade stands as entered. Do not wait until the end of the semester to check your grades. Grades are not assigned by a “curve”, where a certain percent is assigned “A”, “B”, etc. Instead, you are competing against my expectations, not your classmates, and there is no predetermined percentage of “A”, “B”, and “C”. The exact division between letter grades will not be determined until the final points are totaled, but the grade breaks will not be raised above typical values (e.g., the A-B grade break will be 90% or lower, etc.). No items are weighted—your grade is based solely on total points received.

**Dates for Withdrawals:** There are no longer any restricted withdrawals. Students no longer will ask instructors for a signature on a form requesting a grade of W or E. Instead, students will just withdraw. HOWEVER, there is a course withdrawal deadline—check the university calendar to find the course withdrawal deadline for this semester. The course withdrawal deadline is a no-tolerance policy. When the withdrawal period ends, students only have one option – a grade of E for the course.

**Incomplete Grade:** A mark of “I” is given only when a student who is otherwise doing acceptable work is unable to complete a course because of an illness or other situation beyond the student’s control. The student is required to arrange for the completion of the course requirements with the instructor. The university does not allow instructors to assign a grade of “I” simply because a student has quit attending classes and/or completing assignments.

**Tardiness:** Tardiness is discouraged since it disrupts class. Tardy students will not be allowed extra time to make-up for the time lost on timed exams. Remember, in-class exams and in-class extra credit points cannot be made up for non-emergency, unexcused absences, or absences that occur without prior notification to the instructor. **Points missed due to tardiness cannot be made up.**

**Academic Misconduct and Academic Dishonesty** will not be tolerated. Students engaging in misconduct or dishonest practices on exams, quizzes, or other assignments will be dealt with according to the guidelines established by the university.

**Class Disruptions** are defined as activities that distract the instructor or other students from the course content. Such activities include talking or whispering, cell phones ringing, tardiness, or whispering about another tardy student, noisily preparing to leave the class prior to the end of the
period, etc. Disruptive students will be asked to leave the class. Repeat offenders may be withdrawn.

**Audio/Visual Recording:** Neither audio nor video recording will be permitted except under special circumstances prescribed by the ASU Disability Resource Center (DRC). You are also not allowed to use the camera in your phone to record pictures or video, without expressed consent of the instructor.

**Cellular Telephones/Text Messaging/Pagers:** Please turn off all cellular telephones and pagers during class time – this includes text messaging. If your work situation requires that you be on call, please notify the instructor prior to class. Text messaging is not permitted in this class.

**Use of Laptops in the Classroom:** You are only permitted to use a laptop during class to take notes, as long as you do not disturb your neighbors. Many of the notes in this class, however, will involve sketches, so a laptop may not be the best way to take notes. Laptops may not be used during class time to answer email, browse the web, listen to music, or any other activity not related to class. If you are using your laptop for one of these unauthorized activities, you will lose all extra-credit points earned to that point. The instructor or teaching assistant may simply note who you are and contact you after class rather than interrupting the class to notify you. If you are disrupting other students you will be asked to leave the lecture hall.

**Help along the Way:** Many students enter this class with a bit of anxiety. Other students may have various disabilities, including test anxiety, which may make traditional classroom environments very difficult. Fear not, almost all such students before you have actually passed this course – many with very high grades! The success of many of these students, though, was in part because they attended class regularly, took advantage of my office hours, or obtained help from the teaching assistant. If you are having difficulty understanding the course work, please contact me or the teaching assistant immediately. Also, ASU has learning centers, disability resource centers, and counseling centers to address the various needs of students.
<table>
<thead>
<tr>
<th>Week Beginning</th>
<th>Topic</th>
<th>Readings, Etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thu: Overview of Class and Class Operations/The Nature of Geology</td>
<td>Chapter 1</td>
</tr>
<tr>
<td></td>
<td>Tues: Investigating Geologic Questions</td>
<td>Chapter 2</td>
</tr>
<tr>
<td></td>
<td>Thu: Investigating Geologic Questions</td>
<td>Chapter 2</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>2</td>
<td>Tue: Plate Tectonics</td>
<td>Chapter 3</td>
</tr>
<tr>
<td></td>
<td>Thu: Plate Tectonics</td>
<td>Chapter 3</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>3</td>
<td>T: Exam 1 (Chapter 1-3)</td>
<td>Exam</td>
</tr>
<tr>
<td></td>
<td>Thu: Earth Materials; Quiz Ch 4 / Investigation Ch 4</td>
<td>Chapter 4</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>4</td>
<td>Tue: Igneous Rocks</td>
<td>Chapter 5</td>
</tr>
<tr>
<td></td>
<td>Thu: Igneous Rocks</td>
<td>Chapter 5</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>5</td>
<td>Tue: Volcanic Hazards</td>
<td>Chapter 6</td>
</tr>
<tr>
<td></td>
<td>Thu: Volcanic Hazards</td>
<td>Chapter 6</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>6</td>
<td>T: Exam 2 (Chapters 4-6)</td>
<td>Exam</td>
</tr>
<tr>
<td></td>
<td>Thu: Sedimentary Environments; Quiz Ch 7 / Investigation Ch 7</td>
<td>Chapter 7</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>7</td>
<td>Tue: Deformation and Metamorphism</td>
<td>Chapter 8</td>
</tr>
<tr>
<td></td>
<td>Thu: Deformation and Metamorphism</td>
<td>Chapter 8</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>8</td>
<td>Tue: Geologic Time</td>
<td>Chapter 9</td>
</tr>
<tr>
<td></td>
<td>Thu: Geologic Time</td>
<td>Chapter 9</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>9</td>
<td>T: Exam 3 (Chapters 7-9)</td>
<td>Exam</td>
</tr>
<tr>
<td></td>
<td>Thu: Seafloor and Continental Margins; Quiz Ch 10 / Investigation Ch 10</td>
<td>Chapter 10</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>10</td>
<td>Tue: Earthquakes and Earth’s Interior</td>
<td>Chapter 12</td>
</tr>
<tr>
<td></td>
<td>Thu: Earthquakes and Earth’s Interior</td>
<td>Chapter 12</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>11</td>
<td>Tue: Weathering, Soil, and Unstable Slopes</td>
<td>Chapter 15</td>
</tr>
<tr>
<td></td>
<td>Thu: Weathering, Soil, and Unstable Slopes</td>
<td>Chapter 15</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>12</td>
<td>T: Exam 4 (Chapters 10, 12, and 15)</td>
<td>Exam</td>
</tr>
<tr>
<td></td>
<td>Thu: Rivers and Streams; Quiz Ch 16 / Investigation 16</td>
<td>Chapter 16</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>13</td>
<td>Tue: Water Resources</td>
<td>Chapter 17</td>
</tr>
<tr>
<td></td>
<td>Thu: Water Resources</td>
<td>Chapter 17</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m.</td>
<td>Online</td>
</tr>
<tr>
<td>14</td>
<td>Tue: Energy and Mineral Resources</td>
<td>Chapter 18</td>
</tr>
<tr>
<td></td>
<td>Thu: Energy and Mineral Resources</td>
<td>Chapter 18</td>
</tr>
<tr>
<td></td>
<td>Fri: Online assignment due 11:30 p.m. on November 29)</td>
<td>Online</td>
</tr>
<tr>
<td>15</td>
<td>Tue: Exam 5 (Chapter 16-18)</td>
<td>Exam</td>
</tr>
<tr>
<td></td>
<td>Thu: No class; last day of school is Tuesday</td>
<td>No class</td>
</tr>
<tr>
<td>Finals</td>
<td>Optional Final Exam</td>
<td>Optional Final</td>
</tr>
</tbody>
</table>

*All due dates and distribution of grade points is subject to chance according to class needs.
Assignment Schedule for GLG101*

Quizzes and Investigations are due on Blackboard by 11:30 p.m. on the day indicated.

<table>
<thead>
<tr>
<th>Week Beginning</th>
<th>Tuesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overview of class</td>
<td>Ch 1 Nature of Geology</td>
<td>No assignment due</td>
</tr>
<tr>
<td></td>
<td>Ch 2: Investigating Geologic Questions</td>
<td>No formal class time (Note: Chapter 1 and 2 combined into a single quiz; no chapter 2 investigation)</td>
<td>Ch 1&amp;2 Quiz (20 points): 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.0, 2.1, 2.2, 2.3, 2.4, 2.6, 2.7, 2.8, 2.9</td>
</tr>
<tr>
<td>3</td>
<td>Ch 3: Plate Tectonics</td>
<td>No formal class time</td>
<td>Ch 3 Quiz (20 points): 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9 (due Sep 3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Exam 1 (Chapters 1-3)</td>
<td>Ch 4: Earth Materials</td>
<td>Ch 4 Quiz (20 points): 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11, 4.12, 4.13, 4.14</td>
</tr>
<tr>
<td></td>
<td>Ch 5: Igneous Rocks</td>
<td>Ch 5: Igneous Rocks</td>
<td>Ch 5 Quiz (20 points): 5.0, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13</td>
</tr>
<tr>
<td>6</td>
<td>Ch 6: Volcanoes and Volcanic Hazards</td>
<td>Ch 6: Volcanoes and Volcanic Hazards</td>
<td>Ch 6 Quiz (20 points): 6.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Exam 2 (Chapters 4-6)</td>
<td>Ch 7: Sedimentary Environments</td>
<td>Ch 7 Quiz (20 points): 7.0, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10, 7.11, 7.12, 7.13, 7.14</td>
</tr>
<tr>
<td></td>
<td>Ch 8: Deformation and Metamorphism</td>
<td>Ch 8: Deformation and Metamorphism</td>
<td>Ch 8 Quiz (20 points): 8.0, 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.12, 8.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Exam 3 (Chapters 7-9)</td>
<td>Ch 10: Seafloor and Continental Margins</td>
<td>Ch 10 Quiz (20 points): 10.0, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.10, 10.11, 10.12, 10.13, 10.14</td>
</tr>
<tr>
<td></td>
<td>Ch 12: Earthquakes and Earth’s Interior</td>
<td>Ch 12: Earthquakes and Earth’s Interior</td>
<td>Ch12 Quiz (20 points): 12.0, 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7, 12.10, 12.11, 12.12, 12.13, 12.14, 12.15, 12.17</td>
</tr>
<tr>
<td>Week</td>
<td>Chapter(s)</td>
<td>Quiz Material</td>
<td>Investigation</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>12</td>
<td>Ch 15: Weathering, Soil, and Unstable Slopes</td>
<td>Ch15 Quiz (20 points): 15.0, 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 15.9, 15.10, 15.11, 15.12</td>
<td>Ch 15 Investigation</td>
</tr>
<tr>
<td>13</td>
<td>Ch 16 Quiz (20 points): 16.1, 16.2, 16.3, 16.4, 16.5, 16.6, 16.7, 16.8, 16.9, 16.11, 16.12, 16.14</td>
<td>Ch 16 Investigation</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Ch 17: Water Resources</td>
<td>Ch17 Quiz (20 points): 17.0, 17.1, 17.2, 17.3, 17.4, 17.5, 17.6, 17.7, 17.8, 17.9, 17.10</td>
<td>Ch 17 Investigation</td>
</tr>
<tr>
<td>15</td>
<td>Ch 18: Energy and Mineral Resources (fossil fuels)</td>
<td>Holiday</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Ch 18: Energy and Mineral Resources (mineral deposits)</td>
<td>Ch18 Quiz (20 points): 18.0, 18.1, 18.2, 18.3, 18.4, 18.5, 18.6, 18.7, 18.8, 18.9, 18.10, 18.11, 18.13, 18.14</td>
<td>Ch 18 Investigation</td>
</tr>
<tr>
<td>17</td>
<td>Exam 5 (Chapters 16-18)</td>
<td>Last day of class is Tuesday</td>
<td>No assignment due</td>
</tr>
</tbody>
</table>

Optional Final: You may take an optional in-class final exam to replace your lowest in-class exam score. Thus, the final exam is an opportunity for you to improve your grade. The exam will be multiple choice and will cover a selection of chapters to be chosen by the instructor. The final exam will only be in-class (i.e., no online version will be given).

*All due dates and distribution of grade points is subject to change according to class needs.*
GLG 103: Intro to Geology 1: Laboratory  
Syllabus and Requirements

Instructor: ___________  Office: ___________  Office Hours: ___________  Email: ___________

Head TA: ______________________________  Email: ______________________________

Faculty Instructor: _________________________________


Relation to GLG 101: The laboratory course, GLG 103, is administered separately from the “lecture” course (GLG 101). Grades are determined independently for each course and not combined into one grade. Both GLG101 and GLG103 must be taken to secure SQ or SG credit. The courses cover complementary material, but topics do not necessarily correspond on a week-by-week basis.

Attendance: Attendance is mandatory! Students must attend the lab section for which they are registered, except when a lab is being made up due to an excused absence. Labs will begin promptly at the beginning of the lab period; you should plan on arriving on time and staying the entire two hours.

Lab Schedule: The schedule of labs is listed below. Labs do not meet the first week of school. Lab classes begin the week of Monday.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Lab Assignment</th>
<th>Chapter</th>
<th>Lab Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Painted Canyon: The Shape of the Land</td>
<td>8</td>
<td>Settling Painted Canyon</td>
</tr>
<tr>
<td>2</td>
<td>Locating Yourself on Topographic Maps</td>
<td>9</td>
<td>Grand Canyon of Northern Arizona</td>
</tr>
<tr>
<td>3</td>
<td>Mineral Riches of Painted Canyon</td>
<td>10</td>
<td>Canyons and Mountains of Southern and Central Arizona</td>
</tr>
<tr>
<td>4</td>
<td>Ancient Mountains and Volcanoes of Painted Canyon</td>
<td>11 or 12</td>
<td>You will not meet in the normal lab room! Labs that meet in H456 will do Field Trip to Tempe Butte (Chapter 11), while labs that meet in H457 will do Hometown Geology (Chapter 12) in the Map Library. (This lab cannot be dropped.)</td>
</tr>
<tr>
<td>5</td>
<td>Ancient Environments of Painted Canyon</td>
<td>11 or 12</td>
<td>You will not meet in the normal lab room! Labs that meet in H457 will do Hometown Geology (Chapter 12) in the Map Library. (This lab cannot be dropped.)</td>
</tr>
<tr>
<td>6</td>
<td>Mapping the Geology of Painted Canyon</td>
<td>13</td>
<td>Geology and Landscapes of Arizona (this lab cannot be dropped)</td>
</tr>
<tr>
<td>7</td>
<td>Reconstructing the Geologic History of Painted Canyon</td>
<td>14 (Make-up Lab)</td>
<td>Badwater and Fossils of the Grand Canyon and Colorado Plateau</td>
</tr>
</tbody>
</table>

Grades: Grades are assigned based on points you earn by (1) attending and completing the labs, (2) a weekly quiz, (3) turning in worksheets at the end of each lab, (4) worksheet on the geology of your hometown, and (5) a worksheet on Tempe Butte. There are no hour exams and no final. Completing the weekly lab worksheets accounts for most of the total points, so attendance is essential! The point distributions and typical letter-grade assignments for the total points earned are listed on the following page.

- Each lab, including the first one, is worth 40 points, except for the Hometown Geology lab and the Tempe Butte lab, as described below. In determining grades at the end of the semester, your lowest lab score and quiz score will be dropped and not included in the point total. You may NOT drop the Tempe Butte lab, the Hometown Geology lab, or the Geology and Landscapes of Arizona lab. Work done in lab manuals will be checked at the end of the lab period by the instructor, and worksheets will be handed in for grading. Worksheets will not be handed back. Grades for the labs and the quizzes will be available from your instructor. The “Hometown
Geology Lab” is worth 40 points for the participation at the ASU map library (week 11 or 12). Following the lab, you will complete a worksheet on the geology of your home town, which is worth 20 points.

<table>
<thead>
<tr>
<th>Point Distribution</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Labs (@40 points each; after dropping the lowest lab score)</td>
<td>400</td>
</tr>
<tr>
<td>9 Weekly Quizzes (@5 points each; after dropping the lowest quiz score)</td>
<td>45</td>
</tr>
<tr>
<td>Hometown Geology Lab &amp; Worksheet</td>
<td>60</td>
</tr>
<tr>
<td>Tempe Butte Lab</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>570</strong></td>
</tr>
</tbody>
</table>

You will have one week from the date a grade is posted on Blackboard to contest a grade. After this one-week period, the grade stands as entered. In other words, check Blackboard regularly to view your grades and make sure they have been entered correctly.

**Quizzes:** Starting with the second chapter, each lab will begin with a short quiz that is worth 5 points. (Exceptions to this are during chapters 11 & 12 when the Hometown Geology and Tempe Butte labs occur.) The material on the quiz will come from (1) the lab manual covering the subject of that chapter’s lab, and/or (2) key concepts and skills you learned in the previous week – your TA will inform you what type of material the quizzes will cover. The quizzes are intended to assure that you have read the manual before coming to class and will attempt to cover the most obvious material.

**Make-up labs:** If you miss a lab for medical or other legitimate reasons, the lab should be made up by attending any other lab section during the lab week. You must receive permission from your lab TA in advance of attending an alternative lab, and you may attend an alternative lab a maximum of two times during the semester. Your lab TA has the option of declining to accept lab work done in other labs beyond the two-lab maximum. In order to receive credit for the make-up lab, it is your responsibility to fill out an attendance slip provided by the lab instructor in the make-up lab, not your normal instructor. There are no other official make-up sessions, but remember that your lowest score for a lab, including ONE lab you miss, will be dropped in determining your grade. The last lab in this lab manual (Lab 14) is reserved for students who have official university-excused absences, such as a medical emergency. Otherwise, you will not complete this lab.

**Course Withdrawals:** There is a 10-week course withdrawal deadline. Check the university calendar to find the course withdrawal deadline for this semester. The 10-week course withdrawal deadline is a no-tolerance policy. When the 10-week period ends, students then only have one option—complete withdrawal from all courses.

**Incomplete Grade:** A mark of "I" is given by the instructor only when a student who is otherwise doing acceptable work is unable to complete a course because of an illness or other situation beyond the student's control. The University and the School of Earth and Space Exploration will not sign off on an Incomplete if the student simply quit coming to class without informing the instructor. The student is required to arrange with Julia Johnson (not your lab Instructor) for the completion of the course requirements. The arrangement is recorded on the REQUEST FOR GRADE OF INCOMPLETE form (available from a registrar site or the School of Earth and Space Exploration office). The student has one calendar year from the date the "I" is recorded to complete the course. Marks of "I" for undergraduate courses that have been on the student's record for more than one calendar year are automatically changed to a grade of "E". An undergraduate student does not register or pay fees for a course the second time in order to complete the incomplete.

**Academic Dishonesty:** The School of Earth and Space Exploration has strict and enforced policies against cheating and disruptive behavior. We consider any of the following activities to be cheating: (1) any exchange of answers, either copying them or giving them away between you and other students in your lab or any other lab; (2) coming to lab with any part of that week’s lab manual already filled out, except for the Hometown Geology worksheet; (3) using unauthorized materials (“cheat sheets”) during labs; (4) incorporating another person’s writing into any part of your written lab reports (i.e., plagiarizing), including copying and pasting information from the Internet into your report; and (5) other activities specified in the University Student Academic Integrity Policy. Safeguards are designed into the course to identify and document cheating. Proof of cheating will result in an automatic grade of "E" for the course and will be reported to the University, possibly resulting in your suspension or expulsion.
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