Course Proposal: New Course

1. Course prefix and number: **GOL 101**

2. Effective Term/Year: **FALL 2014**

3. CIP CODE/10 digit program code: **4006010002**

4. Short Course Title: **Fundamentals of Earth Science**

5. Enter course description exactly as it will appear in the general/graduate bulletin.
Fundamentals of Earth Science (GOL 101) Two hours lecture, two hours laboratory per week. An introduction to the fundamental principles of Earth Science. Topics include the earth¿s structure and surface landforms; mineral and energy resources; geologic hazards such as volcanoes, earthquakes and landslides; water resources; and the unifying theory of plate tectonics. May not be taken by geology majors. Lab fee required.

6. Prerequisites:
none

7. College: **College of Science and Mathematics**

8. Department Teaching Course: **Geology**

9a. Instruction Type: **Lecture**

9b. Credit Hours:
Maximum: **3** Minimum: **3** Maximum Hours counted toward degree: **3**

10a. Instruction Type: **Lecture**

10b. Credit Hours:
Maximum: Minimum: Maximum Hours counted toward degree:

11. Maximum contact hours each week fall semester Lecture: **2** Lab: **0** Other: **0**

12. May this course be taken more than one time each semester: **No**

13. Grade Type: **Regular: A-F**

14. Will this course require additional library resources: **No**

15. Does this course replace a course on the current/previously listed inventory: **No**

16. If Yes list the prefix and number: If not applicable enter N/A:

17. What is the primary reason you are proposing this course?
GOL 101 is being developed to provide a geoscience service course for the core curriculum of the university. This course will be offered as a core science course.

18. Describe the place of the proposed course within your current curriculum. Will it be elective or required? Part of a major or a minor?
GOL 101 is a core science course for non-geology majors. This is a service course and is not part of the geology major.

19. How does the proposed course differ from similar courses being offered at Stephen F. Austin?
SFA does not offer a 3-hour geoscience service courses.Students will be introduced to and apply scientific method to evaluate hypotheses regarding earth¿s structure,distribution of natural resources,immediate and long-term impact of geologic hazards and anthropogenic influence on the natural world.

20. Syllabus: Course Learning Goals
List course objectives; describe what students who complete the course will know or be able to do.
Demonstrate an understanding of fundamental geologic concepts.
Use quantitative reasoning to interpret geologic data.
Demonstrate knowledge on interdependence of science,technology and geologic reasoning.
Critically assess interrelationships between geologic phenomenons and communicate results.

21. Syllabus: Course Outline
List the topics that the proposed course will cover and indicate the approximate proposed amount of time to be devoted to each, either by percent of course time or number of weeks. Please indicate which topics will be required in all sections of the course and which may vary.
Lecture Course Calendar:

Dynamic Earth ~25%
Geologic Hazards ~25%
Earth
in Society ~25%
Hydrogeology ~25%

22. Syllabus: Proposed Textbook/Assigned Reading Materials for course
Essentials of Geology (3rd Ed.), by Stephen Marshak

23. Any Other Information
Co-requisite GOL101L

Dept. Chair _____ Date: 11/4/13

College Curriculum Chair _____ Date: _____

College Dean _____ Date: _____

Grad Dean/Univ Curr Chair _____ Date: _____

Course Proposal: New Course

1. Course prefix and number: **GOL 101L**

2. Effective Term/Year: **FALL 2014**

3. CIP CODE/10 digit program code: **4006010002**

4. Short Course Title: **Fundamentals Earth Science Lab**

5. Enter course description exactly as it will appear in the general/graduate bulletin.
Fundamentals of Earth Science Lab (GOL 101L) Twohours laboratory per week. An introduction to the fundamental principles of Earth Science. Topics include the earth¿s structure and surface landforms; mineral and energy resources; geologic hazards such as volcanoes, earthquakes and landslides; water resources; and the unifying theory of plate tectonics. May not be taken by geology majors. Lab fee required.

6. Prerequisites:
none

7. College: **College of Science and Mathematics**

8. Department Teaching Course: **Geology**

9a. Instruction Type: **Lab**

9b. Credit Hours:
Maximum: **0** Minimum: **0** Maximum Hours counted toward degree: **0**

10a. Instruction Type: **ns**

10b. Credit Hours:
Maximum: Minimum: Maximum Hours counted toward degree:

11. Maximum contact hours each week fall semester Lecture: **0** Lab: Other: **0**

12. May this course be taken more than one time each semester: **No**

13. Grade Type: **Not Graded**

14. Will this course require additional library resources: **No**

15. Does this course replace a course on the current/previously listed inventory: **No**

16. If Yes list the prefix and number: If not applicable enter N/A:

17. What is the primary reason you are proposing this course?
GOL 101 is being developed to provide a geoscience service course for the core curriculum of the university. This course will be offered as a core science course.

18. Describe the place of the proposed course within your current curriculum. Will it be elective or required? Part of a major or a minor?
GOL 101 is a core science course for non-geology majors. This is a service course and is not part of the geology major.

19. How does the proposed course differ from similar courses being offered at Stephen F. Austin?
SFA does not offer a 3-hour geoscience service courses.Students will be introduced to and apply scientific method to evaluate hypotheses regarding earth¿s structure,distribution of natural resources,immediate and long-term impact of geologic hazards and anthropogenic influence on the natural world.

20. Syllabus: Course Learning Goals
List course objectives; describe what students who complete the course will know or be able to do.
Demonstrate an understanding of fundamental geologic concepts.
Use quantitative reasoning to interpret geologic data.
Demonstrate knowledge on interdependence of science,technology and geologic reasoning.
Critically assess interrelationships between geologic phenomenons and communicate results.

21. Syllabus: Course Outline
List the topics that the proposed course will cover and indicate the approximate proposed amount of time to be devoted to each, either by percent of course time or number of weeks. Please indicate which topics will be required in all sections of the course and which may vary.
Lab Course Calendar:

Dynamic Earth ~27%
Geologic Hazards ~19%
Earth in
Society ~27%
Hydrogeology ~27%

22. Syllabus: Proposed Textbook/Assigned Reading Materials for course
Fundamentals of Earth Science Laboratory Manual

23. Any Other Information
Co-requisite GOL101

Dept. Chair _____ Date: 11/4/13

College Curriculum Chair _____ Date: _____

College Dean _____ Date: _____

Grad Dean/Univ Curr Chair _____ Date: _____

CoSM Class Syllabus / Policy

2014 / Fall
GOL 101 & GOL 101L
Fundamentals of Earth Science

Name: Professor
Department: Geology
Email: abcdefg@sfasu.edu
Phone: 936-468-####
Office: E.L. Miller Science 3##
Office Hours: TBA or by appointment

Class meeting time and place: Varies; E.L. Miller Science 3##
Lab meeting time and place: Varies; E.L. Miller Science 3##

Course Description:
Fundamentals of Earth Science (GOL 101) Two hours lecture, two hours laboratory per week. This course is designed as an introduction to the fundamental principles of Earth Science. Topics include the earth's structure and surface landforms; mineral and energy resources; geologic hazards such as volcanoes, earthquakes and landslides; water resources; and the unifying theory of plate tectonics. Required lab fee. No prerequisites.

Program Learning Outcomes:
There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and / or a service course.

General Education Core Curriculum Objectives/Outcomes:
The student is expected to develop the following core objectives established by the THECB.

CO 1. **Critical Thinking Skills** – creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. (SLO 1-4)
CO 2. **Communication Skills** – effective development, interpretation and expression of ideas through written, oral and visual communication. (SLO 4-5)
CO 3. **Empirical and Quantitative Skills** – manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLO 1-2,4)
CO 4. **Teamwork** – the ability to consider different points of view and to work effectively with others to support a shared purpose or goal. (SLO 3-5)

Student Learning Outcomes for Lecture and Lab:
After successful completion of this course students will be able to:

SLO 1. Demonstrate an understanding of fundamental geologic concepts as it relates to Earth processes and landscape evolution through geologic time. (Critical Thinking, Empirical and Quantitative Skills)
SLO 2. Use quantitative reasoning to interpret geologic data (tables, figures, graphs) from primary research, data assimilation and models to assess the differences in competing scientific theories associated with rock formation. (Critical Thinking, Empirical and Quantitative Skills)
SLO 3. Demonstrate knowledge on the interdependence of science and technology and the influences geologic reasoning associated with identifiable and testable hypotheses of geologic processes. (Critical Thinking, Teamwork)

SLO 4. Critically assess the interrelationships between geologic phenomena and communicate the resulting conclusions in oral, visual and written formats. (Critical Thinking, Communication, Empirical and Quantitative Skills, Teamwork)

SLO 5. Demonstrate an understanding of the skills and attitudes necessary for effective teamwork in collaborative learning activities. (Communication, Teamwork)

Text and Materials:

- ***Essentials of Geology*** (3rd Ed.), by Stephen Marshak (tentative)
- Fundamentals of Earth Science Laboratory Manual

Course Requirements:

GOL101 (Fundamentals of Earth Science) is an introduction to the study of the earth's structure and natural processes. In this course, students will be introduced to and apply the scientific method to evaluate hypotheses regarding the earth's structure, the distribution of natural resources, the immediate and long term impact of geologic hazards, and anthropogenic influence on the natural world.

This class is a 3-credit hour course and has a weekly requisite lab where students will gain hands-on experience with earth materials, gathering and analyzing data, communicating their findings and working as a team to explain scientific processes. Grades from the lecture and lab will be averaged, with the lab counting 1/3 of the grade. You will receive one grade for the entire course, assigned by your lecture instructor.

Lecture Course Information

Lecture Course Calendar (required in all sections):

Topics to be covered in GOL 101 Lecture include:

- Dynamic Earth ~25% of semester
  - Minerals and Rocks
  - Structure of the Earth
  - Plate Tectonics
  - Weathering and Erosion
  - Shapes of the Earth
- Geologic Hazards ~25% of semester
  - Volcanoes
  - Mountains
  - Earthquakes
  - Landslides
- Earth in Society ~25% of semester
  - Material Resources
  - Energy Resources
  - Geology in the Environment
- Hydrogeology ~25% of semester
  - Surface Waters
  - Groundwater
  - Floods
  - Coastal Processes

Grading Policy:

- Lecture counts 2/3 (66.7%) of course grade. Grades from each lecture test will count equally toward your final lecture grade. Lab counts 1/3 (33.3%) of the final course grade.
- Total points: 66.7% (Lecture) + 33.3% (Lab) = 100%

- Grade Scale: 90 – 100 = A, 80 – 89 = B, 70 – 79 = C, 60 – 69 = D, < 60 = F

All lecture exams will include a multiple-choice section with additional sections that will vary between exams but may include any or all of the following sections: 1) multiple choice questions; 2) true / false questions; 3) fill in the blank questions; 4) short answer questions; 5) figure illustration; 6) short essay questions. All exams will take place in room 3## unless otherwise stated in class.

Cell phones, calculators, and other electronic devices are NOT permitted during exams. If you are using them in an exam, it will be assumed that you are cheating and you will receive a grade of "0" on that exam.

Lecture exam scheduling conflicts for officially sanctioned university reason will be accommodated at a different time or date. In the event of such conflicts, you must inform me at least one week prior to the exam to reschedule your exam.

Make-up exams are only given in documented cases of official university activities, illnesses or deaths in the family. If the final is missed for a legitimate excuse, an "Incomplete" will be given at the final and a make-up exam can be taken at the beginning of the next semester. Make-up exams will be different than the regular class exam and may be entirely essay format.

Attendance Policy:

- Daily attendance will be taken for university accounting purposes. Success in this course will reflect the level of effort you put into the course.
- Be prepared for lectures by reading the material to be covered in lecture prior to attending class. Questions are encouraged and welcome – do not hesitate to ask questions in class.
- No electronic devices are needed during lectures for this class, including cell phones and calculators. Please turn them off and do not use them in class. Ringing phones and beeping electronics disturb others in the class and interrupt lectures. If you interrupt class with your personal electronic devices, you will be asked to leave for the day.
- If you are late to class, please seat yourself quietly. Try not to be late because it interrupts others in the class. If you need to use the restroom or become ill, please excuse yourself from the lecture quietly.
- If you need to study for another class, do it elsewhere. The classroom is not the place to sleep either. Basically, refrain from activities in lectures that will distract or disturb the other students in the room.

Laboratory Course Information

Laboratory Exercises and Group Project: In order to facilitate the inclusion of the General Education Core Curriculum Objectives uniformly across multiple sections of the course, these objectives will be addressed in the laboratory exercises. Weekly laboratory exercises will reinforce lecture material with practical exercises designed to enhance specific General Education Core Curriculum Objectives. Each week, students will be introduced to these core objectives in the form of classroom exercises and electronic assignments delivered through the SFA platform Desire2Learn (d2l). Students will be responsible for accessing and downloading material and assignments from d2l and uploading pertinent laboratory materials and quizzes to d2l.

Each week, students will complete a laboratory exercise which will be turned in to the laboratory instructor for grading at the end of the class period. During the laboratory exercises, students will work individually and in teams to complete the in-class assignments. In addition to the classroom exercise, students will be responsible for taking a weekly requisite electronic quiz administered through d2l. The

quizzes should be taken individually, and must be completed by 12 midnight on the days they were assigned (your weekly lab day). These electronic quizzes will address topics covered in the laboratory class and will be used to address the Critical Thinking, Written Communication, and Empirical and Quantitative Skills General Education Core Curriculum Objectives.

Group Project: During week 7, students will participate in a group project to analyze geologic data and create a final project which will address the Teamwork and Communication Skills General Education Core Curriculum Objectives. The project is a major grade component and will require time outside the classroom. Final projects will be uploaded electronically by each student. More information on this assignment will be given before the project is assigned.

Your laboratory grade will consist of the following:

• Weekly Laboratory Exercises (10 exercises @ 10 points each)	100
• Weekly Electronic Quizzes (10 quizzes @ 10 points each)	100
• Group Project (50 points)	50
• Exams (Midterm and Final Exam, 100 points each)	200
Total Points	450

Your average in lab will be determined by the number of points you earn divided by 450.

Laboratory Exams: Two major exams will be given in the classroom during the laboratory period. Grades for laboratory classroom activities, exams, and electronic assignments will be delivered through d2l. You **will not** receive a separate grade for your lab performance. Your laboratory average will be sent to your lecture instructor and your final grade for the course will be assigned by your lecture instructor using the formula listed on page 2, Grading Policy.

All make-up exams are departmental and will be given at one time. It is the responsibility of the student to find out the date and time of the exam. The Laboratory Coordinator can provide that information. All exams must be made up **NO LATER THAN 2 WEEKS AFTER REGULARLY SCHEDULED TIME.**

Laboratory Etiquette: Each laboratory exercise must be completed during the laboratory period. You must be present for the entire laboratory in order to turn in the exercise at the conclusion of the laboratory. Cell phones and other electronic devices are NOT permitted during the class or exams. If you are using them in an exam, it will be assumed that you are cheating and you will receive a grade of "0" on that exam. If you are using them in class, you will be asked to leave.

Missed work: Attendance is mandatory for understanding the material and participating in class. Opportunities for make-up exercises/quizzes will be approved by the **Laboratory Coordinator** for **EXCUSED** absences only. The following constitutes an excused absence:

- Illness: note from doctor for day of the lab.
- Death in Family: must be documented by obituary clipping from newspaper or funeral home.
- Jury Duty: must be documented by note from judge or other court official.
- School Function: name must appear in Faculty Bulletin or note must be sent from instructor, coach, etc.

If you cannot document an excused absence, late work may be accepted at the discretion of the Laboratory Coordinator. Your grade will be lowered by 5% for each day the assignment is late, and will not be accepted one week after the assignment is due.

After a student has missed more than 3 labs, 10 points will be deducted from the final lab average for each additional absence. You are expected to come to lab, to be on time, and to stay for the duration of the lab. Whenever it is possible, arrangements should be made BEFORE the lab time so that provisions can be made.

Help with the material: Internet lab tutorials for laboratory exercises can be found on the d2l page for your assigned laboratory section. Teaching Assistants will hold tutorial sessions every Friday at 1:00 to help students with the material

Laboratory Course Calendar (required in all sections):

Week	Laboratory Topic	General Education Core Curriculum Objective					
		Critical Thinking	Communication			Empirical & Quantitative Skills	Teamwork
			Written	Visual	Oral		
	Dynamic Earth						
	Reporting Scientific Information Handout;	X	X	X	X	X	
1	Introduction to the Scientific Method and Critical Thinking;	X					
	Introduction to Earth Materials; The Rock Cycle;	X	X				
	Instruction for Electronic Quizzes;	X	X			X	
	Critical Thinking Quiz (d2l)	X	X				
	Introduction to Teamwork; Introduction to Empirical				X		X
2	and Quantitative Skills; Sediment and Erosion;	X				X	
	Erosional Landforms; Erosion Rates;	X				X	X
	Critical Thinking Quiz (d2l)	X	X			X	
	Geomorphology	X					
3	Landforms and Earth Processes	X	X		X		X
	Critical Thinking Quiz (d2l)	X	X				
	Geologic Hazards						
	Volcanoes and Volcanic Processes	X				X	X
4	Sources of Earth's Heat; Yellowstone Caldera;	X	X		X	X	X
	Empirical and Quantitative Skills Quiz (d2l)	X	X			X	
	Earthquakes;	X				X	X
5	Magnitude, Distance, and Location;	X			X	X	X
	Empirical and Quantitative Skills Quiz (d2l)	X	X	X		X	
6	**Midterm Exam (classroom)**	X	X				
	Earthquakes & Plate Boundaries	X				X	X
7	Earthquakes Patterns and Frequency	X	X		X		

	Teamwork Evaluation (d2l)	X					X
	Group Project (d2l)	X	X	X	X	X	X
	Earth in Society						
	Mining and Excavation	X	X			X	X
8	Earth's Mineral Resources	X			X	X	
	Critical Thinking Quiz (d2l)	X	X				
	Powering our Planet	X				X	X
9	Earth's Energy and Climate	X	X			X	X
	Empirical and Quantitative Skills Quiz (d2l)	X	X			X	
	Hydrogeology						
	Fluvial Processes	X				X	X
10	Earth's Water	X	X	X	X	X	X
	Empirical and Quantitative Skills Quiz (d2l)	X	X			X	
	Karst Processes	X				X	X
11	Sinkholes, Caves and Caverns	X	X				
	Critical Thinking Quiz (d2l)	X	X				
	Coastal Processes	X				X	X
12	Emergent and Submergent Coastlines	X			X	X	X
	Empirical and Quantitative Skills Quiz (d2l)	X	X			X	
13	**Final Exam (classroom)**	X	X			X	

Academic Integrity (*A-9.1*)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades *Semester Grades Policy (A-54)*

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from

the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Critical Thinking Assessment Questions – GOL 101

Earth Materials Laboratory

1. The Rock Cycle is a sequence of events by which rocks are formed, altered, destroyed, and reformed as a result of internal and external earth processes within the Earth's systems such as the atmosphere, biosphere, hydrosphere, and lithosphere. What are the major geologic processes and systems affecting rocks at or near the surface? What are the major geologic processes and systems affecting rock deeply buried? Explain your answer. (Week 1)

Sediments and Erosion Laboratory

2. Central Texas contains extensive outcrops of pink granite, which is commonly used in gravestones, counter tops, historical markers, and our State Capital in Austin, TX; and limestone, a carbonate rock used for building material throughout Central and West Texas. Neither rock is found naturally occurring near Nacogdoches. Study the precipitation map provided by the laboratory instructor. Based on the chemical composition of the rocks and the grain size of the minerals, which rock do you think would be stable in East Texas? Explain your answer. (Week 2)

Geomorphology Laboratory

3. Compare the aerial photographs supplied by your laboratory instructor. One photograph shows a landscape created by glacial erosion, one by arid erosion, and one by fluvial erosion. Can you identify the landscapes? What features did you use as a guide? (Week 3)

Mining and Excavation Laboratory

4. Although many economic minerals form by a variety of processes in all geologic materials, bauxite, the ore material of aluminum, is concentrated within lateritic soils by one geochemical process: deep chemical weathering in a humid tropical climate. On the other hand, aluminum is one of the most abundant elements in the Earth's crust. Even though these statements appear to contradict each other, both of these statements are factual. Explain how both of these statements can be true. (Week 8)

Karst Processes Laboratory

5. Many landforms such as deserts and glacial outwash plains are formed from the physical movement and relocation of sediment from one geographic location to another by wind and water. Karst landscapes are formed by the dissolution of soluble rock, the dissolving and eventual re-precipitation of these materials, often underground. How would climate affect the evolution of karst features such as sinkholes, sinking streams, springs, caves and caverns? (Week 11)

Coastal Processes Laboratory

6. Most beaches are composed of sand sized particles brought to the coast by rivers and redistributed along the coastline by long shore currents. Beginning in the 1950s, beach replenishment, replacing sand on beaches lost by erosion or storm surges, became popular. What anthropogenic structures prevent the normal distribution of sediment from continental rivers? How have these structures accelerated erosion along our coastlines? What are some of the problems associated with beach replenishment? Who should bear the cost of beach replenishment? Discuss the pros and cons regarding beach replenishment. (Week 12)

NOTE: These questions are not part of the actual syllabus and are included in this document to facilitate the committee review of our application.

Empirical and Quantitative Skills Assessment Questions – GOL 101

Volcanoes and Volcanic Processes Laboratory

1. Use the data set provided to determine the Volcanic Explosivity Index of listed volcanoes. Plot your data on the graph provided and list each volcano according to their qualitative eruption types. (Week 4)

Earthquake Laboratory

2. The amount of energy released by an earthquake is important because it is directly proportional to the destructiveness of the earthquake. Use the data set to calculate the Ratio of Energy Released using the formula provided. Plot the data on the semilog graph paper. From your graph, determine how many times more energy was released by the Anchorage, Alaska earthquake of 1964 (9.2 Mw) compared with the Sumatra 2004 earthquake (9.0 Mw). Using the same equation, compare the energy released by the Sumatra earthquake with the San Francisco earthquake in 1906 (7.9 Mw). (Week 5)

Earth's Energy and Climate Laboratory

3. Fossil fuels, in the form of oil, natural gas and coal, are the most utilized of all natural energy resources. They provide the world with most of its combustion-derived energy, with the majority still obtained from the burning of coal and lignite. Coal and lignite contain other trace minerals, many of which contain sulfur. Once oxidized by the combustion process, this sulfur is converted to sulfur dioxide and sulfate, some of the primary components of acid rain. Compare the two maps that show historical concentrations for sulfate. What technological advances could have contributed to the dramatic decrease in atmospheric sulfate? How can you explain the geographic distribution of elevated sulfate concentration? Using Excel, create a spreadsheet and calculate the difference in sulfate concentration for the listed locations. Which location had the greatest decrease in sulfate concentration over time? Explain your data. (Week 9)

Fluvial Processes Laboratory

4. Use the maps provided to observe various stream channels. Using the Excel spreadsheet provided, fill in the missing data by describing and/or calculating each of the following stream characteristics: shape of stream, elevation change along the course, channel length, straight line distance, gradient, and sinuosity. Be sure to pay attention to the scales provided for each of the maps. Using Excel, graph stream gradient (horizontal axis) versus sinuosity (vertical axis). What is the general relationship between stream gradient and sinuosity? What is the general relationship between stream gradient and channel width? What is the general relationship between stream gradient and floodplain width? (Week 10)

NOTE: These questions are not part of the actual syllabus and are included in this document to facilitate the committee review of our application.

Earthquakes and Plate Boundaries Group Project – GOL 101

Students will be assigned to work in a group of 2-3 members to foster Teamwork and Communication Skills. For the exercise, students will be supplied with a data set and asked to plot earthquake data based on focal depth. The students will be instructed to use technology, in the form of Excel, to create a spreadsheet to organize their data. Students will then use their data to create a scatter plot (using Excel) to determine if there is any discernible pattern to the data and answer some basic questions allowing them to interpret their data. Based on the pattern of focal depth, students should be able to determine the type of plate boundary associated with this earthquake cluster.

Goals of the Activity:

1. Foster communication and organizational skills among team members.
2. Facilitate the understanding of the relationship between earthquake focal depth, earthquake intensity, and plate boundary dynamics.
3. Strengthen empirical and quantitative skills by the use of technology to manipulate data.
4. Create graphic displays of their data by generating a scatter plot.
5. Strengthen analytical skills by encouraging students to interpret their data.
6. Strengthen written communication skills by asking students to communicate their findings in a formal laboratory report.
7. Strengthen oral and visual communication skills by asking students to work together to create visual graphics from their data in order to report technical information.

Students will be required to work together to process the data, create their spreadsheets and graphs, and discuss various ways to interpret the data. Students will be able to demonstrate their teamwork skills while performing data processing and graphing, and outlining their laboratory reports. Although students are encouraged to work together toward a final product, each student will be responsible for producing an individual formal laboratory report complete with the data sets, calculations, and plots. Individual laboratory reports should be uploaded to d2l. Each laboratory report should list their name as the author, with their team member's names as co-authors.

Students will also be asked to critique the teamwork experience using an online evaluation to determine peer participation and their thoughts on the group project.

NOTE: This project description is not part of the actual syllabus and is included in this document to facilitate the committee review of our application.