

**Syllabus**  
**GEOL 465 Summer Field Geology**  
**Maymester 2017**  
**Geological History of the Argentina Andes**

**Introduction**

Field-based research is an essential part of the Earth Sciences, and forms the basis for a wide array of continuing geological studies. It is also an activity that attracts undergraduates into geology degree programs. Below I outline a field-based Maymester course on the geological history of the southern Andes, Argentina, which is intended to fulfill three important purposes.

1. The course will provide undergraduates with an integrative geological field experience that will allow them to apply their knowledge to a research problem involving most aspects of the Earth Sciences. As such it will help them place the various courses they have taken in context with each other, apply concepts taught in these courses, and to think in an interdisciplinary and creative fashion.
2. This field-based course can act as a “flagship” course that will help with undergraduate recruitment. In addition spots not filled by Earth Sciences majors will be opened to a few outstanding, non-Earth Sciences majors, as was successfully done in my former undergraduate team research program.
3. The field experience in northern Argentina will allow students to experience aspects of the culture, architecture, and language of a South American, Spanish-speaking country shaped by contrasting civilizations over several millennia.

**Course outline**

The course will consist of three parts.

*Part A* will comprise a set of ~ten preparatory interactive seminars at USC centered around the geology of Argentina, learning basic mapping skills, and a discussion of geological problems posed by the links between mountain chains, orogenic belts and magmatism that formed the South American Andes.

*Part B* consists of an ~21-day field trip including ~5 travel days and field-based mapping and research in NW Argentina, during which the students will investigate a set of inter-related research questions in different mapping areas. USC students will be grouped with a mentor and selected Argentina students into research teams, although all participants will be working together on the same overall research objectives.

*Part C* consists of the preparation of geologic maps and a research paper summarizing the work carried out in the field. This phase will be supported by a set of discussion sessions held during Part B.

Instruction will be carried out by Professor Scott Paterson, Department of Earth Sciences, USC aided by a USC TA, although Professors Pablo Alasino and Mariano Larrovere (both at La Rioja University, Argentina) will join the field work in Argentina and act as additional research mentors. The Argentina professors and Argentina students will act as hosts and Spanish translators while in Argentina.

### **Grading Structure**

2 seminar presentations prior to the field trip, 5% each	10%
3 graded exercises during the field trip, 20% each	60%
Term paper	30%

The term paper will be due ~ June 5, 2017 after we return to USC.

### **Recommended Preparation:**

Intro Earth Science course (e.g., GEOL105) and Intro to Field Techniques (GEOL-499)  
Other useful courses: One or more of GEOL 315L Minerals and Earth Systems, GEOL 316L Petrologic Systems; GEOL 320L Surficial Processes and Stratigraphic Systems; GEOL 321L Structural Geology and Tectonics.

### **Summer Logistics**

Students and faculty will stay in dorm rooms at the CRILAR research center, Anillaco, or in hotels near the field areas and travel in either a bus (with professional driver) or CRILAR research vehicles to field locations. To ensure safety in the field, students will always work in a group together with an instructor and at least one Spanish speaking person, and there will always be more than one vehicle available for transportation. There are excellent publically funded clinics in each of the towns where we will stay, which can provide medical services as needed. Students will need to be in good health, physically fit, and able to walk in the field for distances up to 5 miles. Dr. Paterson has already visited the research areas and will be joined by long-standing, Argentina research colleagues Drs. Alasino and Larrovere (both at La Rioja University and the CRILAR research institute, Argentina) throughout the field portion of the program.

### **Statement for Students with Disabilities**

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. Website and contact information for DSP: [http://sait.usc.edu/academicsupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html), (213) 740-0776 (Phone), (213) 740-6948 (TDD only), (213) 740-8216 (FAX) [ability@usc.edu](mailto:ability@usc.edu).

### **Statement on Academic Integrity**

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. *SCampus*, the Student Guidebook, ([www.usc.edu/scampus](http://www.usc.edu/scampus) or <http://scampus.usc.edu>) contains the University Student

Conduct Code (see University Governance, Section 11.00), while the recommended sanctions are located in Appendix A.