James Madison University Geology Field Course in Ireland

Geology and Environmental Science: GEOL 399
May 18th – June 26th, 2016 6 credits

Faculty


Dr. Stephen Leslie, James Madison University. Specializing in stratigraphy and paleontology. Weeks 1-2.

Prof. Martin Feely, National University of Ireland, Galway. Specializing in petrology, mineralogy, and fluid inclusion geochemistry. Assorted days, Weeks 2-4.

Dr. Yonathan Admassu, James Madison University. Specializing in engineering geology. Weeks 3-5.

Dr. Margaret (Beth) McMillan, University of Arkansas, Little Rock. Specializing in landscape evolution and GIS. Weeks 2-4.

Dr. Steve Baedke, James Madison University. Specializing in aqueous geochemistry and hydrology. Weeks 5-6.

Dr. L. Scott Eaton, James Madison University. Specializing in geomorphology. Weeks 5-6.

Dr. John Haynes, James Madison University. Specializing in stratigraphy and petroleum geology. Week 6.

Dr. Chris Swezey, USGS. Specializing in stratigraphy and petroleum geology. Week 6.

Dr. Tiernan Henry, National University of Ireland, Galway. Specializing in hydrogeology. Assorted days, Week 6.


Course Description and Objectives

The Geology Field Course in Ireland is the James Madison University Department of Geology and Environmental Science capstone course for geoscience majors. After completing the field course, you will be qualified to work for an industry, government, or academic employer who needs you to travel to an isolated field area, assess the local bedrock and surficial geology, natural resources, natural hazards, environmental conditions, etc., write a project report, draft a publishable map, compile a database, and return home safely. The main objective is for you to become confident at scientific observation and interpretation of geological problems in the field. You will learn to recognize and interpret a wide variety of rocks, structures, geomorphic, and hydrologic features. Methods of mapmaking, data recording, and report preparation are emphasized. Projects from one to five days’ duration are conducted in regions where igneous, metamorphic, and sedimentary rocks, surficial deposits, and karst features are well-exposed.

Specific learning objectives include:
1. Develop competence in a variety of geologic field methods and techniques.
2. Demonstrate confidence with taking field measurements and collecting field data.
3. Develop habits of mind towards constructing geologic maps and supporting materials (cross-sections, stereonets, documentation) to high quality standards.

4. Develop and enhance the capacity to work independently "to do" geology with a professional skill set.

**Prerequisites**

Physical and historical geology, mineralogy, stratigraphy/sedimentology, structural geology, and petrology are strongly recommended. This means that we expect you to have a working knowledge of common rocks and minerals, some idea of stress and strain and what they can do to rocks, and basic stratigraphic and sedimentologic concepts. But otherwise we presume that we are all starting from the same level. PLEASE ASK ONE OF THE INSTRUCTORS or the Teaching Assistant if you have forgotten/misunderstood/never heard of anything mentioned in class. Everyone forgets some of the things they once knew and it's much better for us to deal with these as we go rather than attempt to build a body of knowledge on shaky foundations.

Attendance is required at all lectures and on all field outings unless you have a legitimate (i.e. medical) reason! If you legitimately miss a class or field exercise, we will arrange for you do make-up work. NOTE that you will be expected to prepare much of the written material, including clean maps and reports, in the evenings after dinner (a typical day has us in field from 8am-5pm, and in the classroom from 7pm-9pm). We do not give you work to do on your weekly day off, as the instructors will be busy grading your completed work.

**Grading**

Your final grade will be based on field trip reports and notes, group and independent mapping projects, and assessment projects. All group projects will include a 10% “Participation and Professionalism” grade, which recognizes each individual’s contribution to the success of the group’s scientific endeavors. Points are gained by being an effective team-player, collaborating appropriately, being punctual, considerate, etc. Points are lost for hostile/harassing behavior, non- or grudging participation, tardiness, abandonment of responsibilities, etc. Grades are based on the rubrics provided or other communicated expectations. High grades are not awarded simply for including all of the elements listed in the instructions.

The weighting of projects will be roughly as follows below, but is subject to change depending on instructional decisions including weather and/or field conditions. Projects are due by 5am on the morning after the last scheduled day for each project, unless announced otherwise by the faculty.

**Weeks 1-4:**

- Lough Fee stratigraphy and mapping project: 15%
- Fountain Hill mapping project: 10%
- Digital mapping and South Mayo tectonics project: 10%
- Engineering Geology project: 10%
- Independent mapping project: 15%

**Weeks 5-6:**

- Glacial Geomorph. or Environ./Hydro project: 20%
- Sed. Systems or Hydro/Karst project: 20%

Projects submitted after the deadline will receive a 25% deduction from the project score.
Reference Texts
General field geology texts: Compton: "Geology in the Field", Coe: "Geological Field Techniques", or equivalent.

Readings from selected texts and journal articles will be available on location (e.g. reference list at end of syllabus). You are welcome (and encouraged) to peruse these at your leisure and encouraged to scan some of them prior to arriving on location in Ireland.

Academic and Personal Conduct
All students registered in GEOL 399 are students of James Madison University for the duration of the course, and are subject to the JMU Honor Code (http://www.jmu.edu/honor/code.html) and other JMU codes of conduct. We are required to report cases of suspected academic misconduct to the JMU Dean's Office. Penalties for violations of the Honor Code may include immediate suspension or expulsion from the course. Thus, if the conduct of any student is considered by the JMU Field Course faculty or staff to be particularly egregious, you may be removed from the course immediately.

Specific to this course: You should share data only when instructed to do so in collaborative exercises. Otherwise, never read another student's written work nor copy their measurements, maps, or field notes. Do not alter or embellish your own field measurements after the fact.

Drinking: The legal age for drinking alcohol in Ireland is 18. However, students are subject to JMU regulations FOR THE FULL DURATION OF THE COURSE (including the optional trip to Northern Ireland). If you drink, you must do so maturely and in moderation, and you are not to disturb the peace of the dorms or the local community. Alcohol is NOT allowed at any of the lodging facilities for the field course. This includes the Petersburg Outdoor Education Centre (POEC), the condos in Doolin, and the hostel in Portstewart. Alcohol is NOT allowed in any vehicles used for the JMU field course. If you violate any of these regulations, cause a serious disturbance, become a danger to yourself or fellow students, or are unable to function effectively due to a hangover, you will be given one warning and then sent home after a second offense.

Smoking: Smoking is not permitted inside the POEC house, in the vehicles, or at the outcrop. Note that all public establishments (including pubs) are smoke-free in Ireland.

Drugs: Recreational drugs that are illegal in the U.S. are also illegal in Ireland. If arrested for a drug offense you will be expelled from the course, and you will be responsible for arranging your own legal representation and/or bail. The Gardai (police) are not required to read you Miranda rights and may detain and/or deport you if you are a non-EU citizen.

Sexual conduct: JMU defines sexual harassment as follows: Sexual harassment is unwanted sexual or gender based behavior that occurs when one person has formal or informal power over the other. Please read the JMU policy at http://www.jmu.edu/assaultprev/Harassment.shtml. Sexual conduct is harassing when it is unsolicited and unwelcome or offensive. The fact that a
person may accept the conduct does not mean that he or she welcomes it. Consensual sexual conduct must be kept private. "Overnight guests" are not permitted in dorms, even if roommates do not explicitly object. For the safety and security of all, anyone not directly involved with the camp MUST NOT be invited into the house, especially after dark, no matter how friendly they may be. If you ask a local person to walk you home, please explain that they must stop at the gate.

Peace and quiet: Petersburg Outdoor Education Center is a serenely beautiful place. Please respect your fellow students' right to enjoy the tranquility. Prior to all working days, excessive noise must be curtailed between 11:00pm and 7am. The kitchen is off-limits during these hours.

Camp life

Breakfast is self-served, and students make their own lunch sandwich before departing. Meal set-up and clean up is done by students on a duty roster. Efficiency in the morning is essential, as we leave promptly for the field site, or begin preparatory lectures, right on time. Early is on-time, on-time is late, and late is unacceptable.

Personal laundry is done on a weekly roster, and you must provide your own detergent (powder only). Please do not break the handles of the front-loader washing machines, which are on a time-switch. Wait two minutes after turning power off and the doors will open without effort. Breaking a handle will cause a back-up in everyone’s laundry schedule and thus make you very unpopular. Expect your wash to take well over 1 hour due to the environmentally friendly, water conserving nature of front-loaders. Also, washers in Ireland tend to run hotter than you are used to in the States, so be careful of colors bleeding. Dryers with a condenser must have the water tray changed after (sometimes during) each use. Blue jeans may not be tumble-dried – hang them out to dry. There is a weekly laundry of bed linen and towels done by Petersburg staff. Remember - you need to bring your own sheets and towels. Comforters (duvets) are provided.

Email is available during evenings and free days only, via a wireless connection. Note that this is a rural, slow connection (sorry – best we can do in a small town in western Ireland). Phones are not available on location at Petersburg (except for emergency use). There are pay phones in Clonbur – a 2 km walk. Many students purchase international phone cards in order to call home from pay phones.

Many US cell phones will not work in Europe, which uses a different system (GSM). If you currently have AT&T or T-Mobile as your carrier, your phone will likely work in Ireland, but calls home may be very expensive. You should check in advance on international rates. You can also use Google Hangouts or Viber with your global-ready or wifi cell phone, or purchase a pay-as-you-go phone on your arrival. These have gotten quite inexpensive, and the “top-ups” can be purchased in most grocery stores or from dedicated vending machines. If you have had an account in good standing with your cell-phone provider for at least 6 months, you can ask them for an “unlock” code so that you can use a SIM card acquired locally.

On free days, you may sleep in and eat breakfast at your leisure. You may eat out provided you give due notice to the kitchen staff. Any day trips on free days are organized by
students and need to be cleared with the faculty. The teaching staff can provide ground transportation, provided we have sufficient advance notice and a (mostly) full van of students. Kayaking, caving, gorge walking, and some other activities can be arranged (by students) with advance consultation with Petersburg staff. There usually is an extra fee for activities directed by Petersburg staff.

**Short list of geological references**


