

**Syllabus (GLY4750L)**  
**Field Methods**

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**Text:** None required, materials will be handed out in class.

**Supplies Required:**

Adobe Illustrator or CorelDraw (computer graphic arts packages). Metal ruler, geology field notebook (yellow rite-in-the-rain suggested), protractor (full circle works better than semi-circle), colored pencils, brunton compass (on loan from department), GPS (on loan from department), calculator, tracing paper.

**Grading:**

*Quizzes (25%) as follows:*

- (1) Weekly quiz on the Geological Time Scale (5% of total so each quiz is relatively small amount of your grade)
- (2) Quiz on rock identification and description (5%)
- (3) Quiz on topographic maps (5%)
- (4) Quiz on geological maps (5%)
- (5) Quiz on stereonet (5%)

*Projects and Assignments (60%):* Late projects lose 15% of their value each day they are late  
*Final Examination (15%)*

**Weekly Schedule**

**Week 1 (August 27):** Introduction to the course. Review supply requirements. Begin on topographic maps and discuss scale, legend information, latitude, longitude, magnetic north versus true north, contour rules, rule of V's, vertical exaggeration, elevation cross-sections.

**Week2 (Sept 10):** More work with topographic maps. Production of Index maps, additional elevation cross-sections. Measure pace outdoors, hand out Brunton and GPS. Introduction to the Brunton compass and how to use for sighting and back-sighting. Outdoor Brunton and pace exercise. Quiz on geological time scale.

**Week 3 (Sept 17):** Brunton work with inclinometer. Meaning of strike and dip in geology. Measurement of strike and dip exercise, measurement of height using inclinometer and pace. Section measurement using Jacobs staff. Quiz on topographic maps and geological time scale.

**Week 4 (Sept 24):** Basic geological structures and strike and dip. Monoclines, antiforms and synforms. Review types of unconformities and faults. Geological symbols for common structures. Introduction to the 3 point problem. Introduction to the intersection of geology with topography (i.e. geological maps). Quiz on geological time scale. [*Turner will lecture. Meert in Helsinki*]

**Week 5 (Oct 1):** Simple geological maps with monoclonal dips and the use of structural contours in geology. The difference between structural contour and a topographic contour. In-class exercise on structural contours. Simple geological histories. Quiz on geological time scale.

**Week 6 (Oct 8):** Interlude on the field notebook and rock/mineral descriptions. Review of Bowen's Reaction Series and Goldich stability series. Review of common sedimentary structures encountered in the field. Quiz on geological time scale.

**Week 7 (Oct 15):** Geological maps. More complexity including the use of structural contours to complete a geological map. More in class work on these maps. Stereonet basics including a description of the net and how to plot lines, planes and poles on the stereonet. Homework exercises for the stereonet.

**Week 8 (Oct 22):** Handout of more complex geological maps to work on. More advanced stereonet work and homework problems. Quiz on geological time scale and rock identification.

**Week 9 (Oct 29):** Field trip introduction. Discussion of plan for the field trip and supplies. Proper note-taking in the field. Friday morning departure for the field.

**Week 10 (Nov 5):** GSA Meeting [*Turner will Lecture*]

**Week 11 (Nov 12):** Last structural contour map. Correlation of sedimentary sequences and construction of stratigraphic sections. Practice correlation between Grand Canyon, Zion Canyon and Bryce Canyon. Quiz on stereonet and geological time scale.

**Week 12 (Nov 19):** Use of real geological maps to produce cross-sections and write up geological histories of the region. Go over geological map symbols and how to use them. In class work on cross-section and geological history write-ups. Quiz on geological time scale.

**Week 13 (Nov 26):** More complex geological maps, cross-sections and geological histories. Plotting structural data from the maps onto stereonets. In class exercises.

**Week 14 (Dec 3):** Report writing and summary of findings. Use of a real geological map and representative samples to prepare a "Report of Geological Investigations".

**Week 15 (Dec 10):** Final Exam

## **Academic Honesty**

Standard Language

### **Grading Scale (based on 100%)**

A: >93%

A-: 89-92.9%

B+: 86-88.9%

B: 83-85.9%

B-: 79-82.9%

C+: 76-78.9%

C: 73-75.9%

C-: 69-72.9%

D+: 66-68.9%

D: 63-65.9%

D-: 59-62.9%

F: <59%