**Mandate:** Determine core learning outcomes for students in EOS service courses.

**Def’n of EOS service courses:** open to ALL; likely the only E/O/A course taken at UBC.

### Background (STLF):
- Demographics
- Instructor interviews
- Grades patterns
- Student interviews
- Arts req’ts in Sci.
- Min. high school req’ts

### Precedent (STLF):
LOTS of literature & meetings re. geoscience curricula

### Examples of data

### Table 1: Collected results from all faculty.

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### Table 2: Collected results from service course instructors.

### Recommendations presented at Dep’t retreat ‘09
- Goals matrix for each course.
- Make goals public (web).
- Use as start for degree program curricula reviews.
- Develop workshops: “Teaching to meet Dep’t aims”.

### Finally:
Modified aims for all EOS service courses.

List of aims is attached.
Proposed Departmental Goals for Service Courses

1. **Knowledge and major concepts:** Students taking a service course in EOS will learn about ...
   a. the spatial and temporal scales at which Earth’s processes operate.
   b. how Earth changes through time.
   c. Earth’s materials and their properties.
   d. Earth's systems and complex interactions.
   e. how Earth and humans are inextricably linked.
   f. the methods earth scientists use to collect and analyze evidence.
   g. how to use evidence to evaluate earth science concepts and draw conclusions.

2. **Skills:** Students taking a service course in EOS will develop their abilities to ...
   a. read, visualize and interpret spatial representations of Earth science data.
   b. apply high school level math and science skills to real world settings.
   c. distinguish among evidence (data), models, assumptions, hypotheses, theories, interpretations, & predictions / recommendations in non-specialist readings or other media.
   d. reason with incomplete information.
   e. reason with and/or evaluate multiple working hypotheses.

3. **Habits and attitudes:**
   a. Service courses in EOS should actively help students to employ appropriate learning skills for the Earth, ocean or atmospheric sciences, including:
      i. identifying and using learning goals for the course, module or lesson;
      ii. consciously assessing progress and modifying study actions;
      iii. using feedback from instructors, peers, and/or self-reflection.
   b. Service courses in EOS should actively help students to consider science as an ongoing endeavor that embraces curiosity, creativity and societal needs, and is not just a set of facts.
   c. Service courses in EOS should actively help students recognize and experience two approaches used in the Earth system sciences, including:
      i. historical, descriptive, systems-oriented approaches;
      ii. experimental approaches.
   d. Service courses in EOS should actively help students to ask “How do we know?”, “Why do we accept it?”, and “What is the evidence for ...?”.