



## Resources about Teaching and Learning for all Faculty

This TIMES points to our growing set of quick guidelines and other resources. We are accumulating these to help transfer new knowledge to all teaching faculty in the Department, as efficiently as possible.

In EOS we consider teachers as "learning coaches" not dispensers of information. Information comes from many sources, but thinking in more mature, expert ways only comes with guided practice. These EOS-SEI project aims to re-develop courses and curriculum, and provide guidance for the many aspects of this coaching or leadership role we all play as instructors.

Specifically, we hope everyone teaching in EOS can strive to become better at ...

- **"Scientific teaching"** - that is guiding students' learning by measuring the evidence and delivering feedback so that students get better at making their own judgments about how their learning is progressing;
- Promoting **"active learning"** - that is, developing opportunities for students to practice behaving like experts, and using time with students to guide those activities. Ideally this should include "safe" opportunities to "fail" or "not succeed", AND relevant timely feedback so that students benefit from realizations that these moments enable.
- **Using learning goals**, building assessments to measure those goals, delivering results back to students and instructors, and generating activities that give students opportunities to practice meeting those goals.
- Helping students improve **study and learning practices and habits**. No one ever started University as an expert learner. BUT most instructors assume students will "figure it out" on their own. We can help students learn to use their time more efficiently.
- **Evidence-based innovation** - i.e. monitoring, and reacting to, new ways of guiding active learning and assessing whether the innovation improved learning.
- **Using precedent**. There is a great deal of research about how people learn science. Let's not re-invent any wheels. Ask an STLF, or (radical thought!) read about geoscience, chemistry, physics or other discipline-specific education research (some [journals](#)).
- READ THE TOP 3 GUIDELINES BELOW (and as many of the others as you are able).

The new EOS-ESI web page at <http://www.eos.ubc.ca/research/cwsei/resources.html> provides short guidelines documents about many aspects of teaching. The top 3 resources for instructors new to courses optimized by the EOS-SEI project are currently ...

1. [What all instructors should know](#) (CWSEI 1-pg PDF)
2. [Educating Scientifically](#) (Summary of C. Wieman's presentation - a CWSEI 4-pg PDF)
3. [Assessments That Support Student Learning](#) (CWSEI 2-pg PDF)

The resources page above points to over 20 other 1 or 2 page summaries based on readings and experiences of all contributors to UBC's CWSEI initiative. It also includes resources under headings *"From students' perspective, but*

instructors should see them”, “Other Learning and Teaching Resources”, and some results of EOS-SEI project work under the heading “EOS-SEI Project materials”. PLEASE let us know if you want more or other stuff.

Finally, the CWSEI website itself (<http://www.cwsei.ubc.ca/>) is becoming a major source of selected resources about learning and post-secondary science education, including whole web “sites” devoted to clicker use, Learning Goals, as well as pointers to selected peer reviewed articles.

### Finally, a summary of EOS-SEI past and present projects as this new season begins.

Project	Status	Who
Eosc 111	Officially “done”. Ongoing work improving assessment and linking lab activities to goals and assessment	S. Harris, B. Gilley
Eosc 112	Third teaching term of the transformation project	S. Harris, W. Hsieh, R. Francois, E. Lane
Eosc 114	Transformation “done” (ie some follow-up is still in progress)	R. Stull, F. Jones,
Eosc 210	Second Teaching term started September 2009	E. Eberhardt, S. Sutherland, U. Mayer, J. Dohaney, B. Gilley
Eosc 211	First teaching term started September 2009	R. Pawlowicz, C. Johnson J.Caulkins
Eosc 212	Second teaching term of the transformation project	M. Bostock, M. Jellinik, F. Jones
Eosc 220	Second teaching term started September 2009	J. Dohaney, M.L. Bevier, J.Caulkins
Eosc 221	Close to done. Ongoing work improving Pre/Post assessment and reorganizing course framework continues next year	M. Kopylova, B. Gilley
Eosc 252	Starting first planning term	F. Herrman, F. Jones
Eosc 322	First teaching term started January 2009	G. Dipple, E. Lane
Eosc 329	First planning term starts January 2010	R. Beckie, J. Caulkins
Eosc 332	In second planning phase. Next teaching term starts January 2009.	J. Mortensen, B. Gilley
Eosc 355	Second teaching term starts January 2010	C. Johnson, F. Jones
Eosc 372	First teaching term started September 2009	S. Allen, M. Maldonado, K. Orians, E. Lane
Eosc 472	First planning term started September 2009	K. Orians, J. Caulkins
Eosc 516	New course “Teaching & Learning in the Earth and Ocean Sciences” (TA training) 3 <sup>rd</sup> offering of this course started September 2009	B. Gilley, B. Smithyman, N. Swart, R. Taylor.
Others	Courses being modified in keeping with eos-sei and CWSEI philosophy, but with limited STLF support, see <a href="http://www.eos.ubc.ca/research/cwsei/LongTermPlan_26Jan09.pdf">http://www.eos.ubc.ca/research/cwsei/LongTermPlan_26Jan09.pdf</a> .	
Curriculum	- Department goals for service courses were approved April 2009. See <a href="http://www.eos.ubc.ca/courses/ServiceCoursesGoals.html">http://www.eos.ubc.ca/courses/ServiceCoursesGoals.html</a> . - Curricula for specific programs are currently under revision.	F. Jones, S. Harris, and others
SAESS	Attitude survey validated & finalized. Survey in use by over 25 courses	E. Lane, and others
Exit Survey	First survey complete, results available soon on EOS-SEI research page.	J. Caulkins
Undergrad B.Sc. Theses	One completed April 2009 (J. Rhajiak) One started September 2009 (A. Jolley)	S. Harris, F. Jones, J. Rhajiak, A. Jolley
Research	For details see <a href="http://www.eos.ubc.ca/research/cwsei/research.html">http://www.eos.ubc.ca/research/cwsei/research.html</a> .	All STLFs
Faculty Development:	TIMES news letter, BrownBag meetings, resources collection (website below), ad-hoc consulting ... all aimed at raising expertise in ‘geo-education’.	All STLFs

Please see <http://www.eos.ubc.ca/research/cwsei/> for our project details and resources. Please let F. Jones know if you find out-of-date stuff there; it is a continuous work in progress.

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**Contact EOS-SEI:** To talk about your course(s) or teaching and learning in general, visit EOS-South 361, or contact Francis Jones ([fjones@eos.ubc.ca](mailto:fjones@eos.ubc.ca)), Brett Gilley ([bgilley@eos.ubc.ca](mailto:bgilley@eos.ubc.ca)), Erin Lane ([elane@eos.ubc.ca](mailto:elane@eos.ubc.ca)), Josh Caulkins ([jcaulkins@eos.ubc.ca](mailto:jcaulkins@eos.ubc.ca)) or Sara Harris ([sharris@eos.ubc.ca](mailto:sharris@eos.ubc.ca)). See also <http://www.eos.ubc.ca/research/cwsei/>.