



QUICK GUIDE TO CAPSTONES

Capstones: Culminating projects, assignments, performances, or experiences that allow students to integrate and synthesize the knowledge, skills, and abilities they acquired in the program or during the course of their study.

Capstone Strengths & Weaknesses:

Strengths

- Provides a multifaceted view of student achievement.
- Students have the opportunity to integrate their learning.
- Students can use the capstone material for graduate school applications and job interviews.
- Adaptable to meet the specific needs of the program/discipline.
- Sets standards for degree completion, graduation.

Weaknesses

- Creating an effective, integrated capstone can be challenging.
- Substantial start-up time required to develop appropriate and systematic methods of assessment.
- Tendency to place the bulk of the assessment responsibility on the capstone instructor.
- Requires flexibility plus commonality because of differences within the major.

Tips:

- In a capstone course, students synthesize, integrate, and/or apply their *previous* knowledge, rather than acquire new knowledge or skills.
- Schedule the capstone before the student's last semester in case remediation is needed.
- Use the capstone assessment process as an opportunity to discuss the program as a whole, not only the capstone.
- Use a rubric to evaluate qualitative materials such as written reports, oral presentations, etc., and provide the rubric to the students.
- Have at least two faculty members evaluate the evidence using criteria agreed upon by the faculty. Include members of the professional or alumni community in the evaluation process.

Notes:



Capstone Experience to Assess Knowledge and Skills

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UHM

Undergraduate/Graduate Seminar GG410/610

- Course description: Gain professional training, practical experience, and evaluate peers on giving scientific presentations emphasizing topics in geology, geophysics, and planetary science.
- Pre-requisites: Dynamic Earth, Geological Inquiry



GG Student Learning Outcomes

Undergraduate

- Students can explain the relevance of geology and geophysics to human needs, including those appropriate to Hawaii, and be able to discuss issues related to geology and its impact on society and planet Earth.
- Students can apply technical knowledge of relevant computer applications, laboratory methods, and field methods to solve real-world problems in geology and geophysics.
- Students use the scientific method to define, critically analyze, and solve a problem in earth science.
- Students can reconstruct, clearly and ethically, geological knowledge in both oral presentations and written reports.
- Students can evaluate, interpret, and summarize the basic principles of geology and geophysics, including the fundamental tenets of the sub-disciplines, and their context in relationship to other core sciences, to explain complex phenomena in geology and geophysics.

M.S.

- Acquire knowledge and skills that will enable her or him to advance the state of the Earth sciences and their application to societal problems.
- Evaluate the hypotheses, methods, results and conclusions of published literature relevant to a chosen scientific problem.
- Define an appropriate and tractable thesis objective, in consultation with his or her advisor.
- Present and defend her or his scientific findings in front of a public audience.
- Write a thesis which documents his or her contribution to the field.

PhD

- Satisfy the SLOs for the M.S.
- Comprehensively synthesize, evaluate, and interpret the fundamental knowledge in her or his sub-discipline.
- Independently construct scientific hypotheses and design and carry out research to evaluate them.
- Critically analyze and synthesize the results of their research, derive conclusions which advance the field, and be capable of writing a manuscript describing these in the peer-reviewed literature.



Course SLOs

- Develop the skills required to effectively prepare, deliver and discuss a scientific presentation and by the end of the semester the students should be able to:
- Assemble all the elements for an effective presentation
- Understand how to communicate their message clearly
- Understand what makes a good talk moderator or session chair
- Critically appraise the talks of others and use these experiences to guide their own presentations



Class activities

- Select a topic for presentation
- Write an abstract
- Prepare and give a talk
- Review and comment on other abstracts and talks
- Moderator duties
- Attentive audience, ask questions



GG410/610 Student Seminar

Instructor: Henrietta Dulaiova (hdulaiov@hawaii.edu, POST 707) and Garrett Ito (gito@hawaii.edu, POST 810)

[CLASS LIST AND EMAIL ADDRESSES](#)

COURSE OBJECTIVES: Improve your ability to prepare, deliver, and discuss a scientific presentation. Your talks will clearly communicate your thought process, be professional, be exciting, and have lasting impact. You will be a better scientist because of your enhanced abilities to communicate your ideas effectively, to present a logical thought process, to reason critically, and to evaluate presentations of others. Finally, you will get to learn about the latest-greatest science in SOEST!

MEETING TIMES: GG410 Monday 1:30-2:20; GG410 & GG610 Friday 2:30-3:20 POST 723

GRADING WILL BE BASE ON:

- In-class talks (50%)
- Abstract (250 word limit) for each talk (20%)
- Constructive evaluations for in-class talks, abstracts, as well as 4 out-of-class talks (20%)
- Effective audience participation (10%)

MODERATOR DUTIES:

- You're the "M.C.", facilitating a show. Treat the event as if the speaker is your best friend debuting his/her best work!
- Arrive early to familiarize you and your speaker with the equipment (computer, projector, microphone, pointer, etc)
- Introduce the speaker: give professional background, highlight special achievements, build up the speaker, and introduce the topic/title
- Ensure a technically good presentation: make sure lighting is good, ask the speaker to speak up if necessary, assist with any technical difficulties, etc.
- Support the speaker by staying attentive and being interested
- Receive and manage questions (and be prepared with a couple of your own in case questions run thin)
- Thank the speaker and replace equipment.



AUDIENCE DUTIES:

- Be and look attentive and interested
- Identify strengths and weaknesses about the content and delivery
- Ask interesting, insightful, and cutting questions.

REFERENCES FOR GIVING GREAT SCIENTIFIC TALKS

- [Preparing Scientific Presentations \(PDF version\)](#)
- [Preparing and Delivering a Talk \(handout\)](#)
- [Ten Secrets to Giving a Good Scientific Talk](#)
- [How Not To Give a Scientific Talk](#)

[TALK EVALUATION FORM](#)



*****MONDAYS, 1:30-2:20*****

Talk Abstracts are due the Wed. before your presentation

Week/Date(s)	
1) 8/24	Class Overview and Discussion. (1) Why learn how to speak? Handout 1 , Handout 2 (2) Ingredients for outstanding talks?
2) 8/31	DOs and DON'Ts of a good talk (ppt)
3) 9/7	Labor Day (No Class)
4) 9/14	M&M experiment see handout
5) 9/21	M&M experiment data
6) 9/28	Writing an Abstract on our M&M experiment
7) 10/5	Preparing a talk and use of Powerpoint

*****FRIDAYS, 1:30-2:20*****

Talk Abstracts are due the Monday before your presentation

1) 8/28	Introductions, Do's and Dont's of a Good Talk		
2) 9/4	Discussion of the 8/28 lecture + How to write an abstract (ppt)		
3) 9/11	Guest Talk by Bill Cutler (UH Ph.D student & Senior Managing Scientist, Integral Consulting Inc)		
4) 9/18	Guest Talk: 'Ethics Issues for Students in the Geosciences' Associate Dean, Pat Cooper		
4) 9/25	What to Expect in the Academic Career		
Week/Date(s)	Moderator	Speaker 1	Speaker 2
6) 10/2	Deon	Michaela	Asdis
7) 10/9	Jonathan	Malin	David F. Francois
8) 10/16	SOEST Open House (No Class)		
9) 10/23	Penny	Tom	Chris
10) 10/30	Michaela	Myriam	David T. Penny
11) 11/6	David T.	Jonathan	Tiffany
12) 11/13	Malin	Matt	Kelly
13) 11/20	Myriam	Lauren	Garrett S. Deon
14) 11/27	Happy Thanksgiving Weekend (No Class)		
15) 12/4	Chris	Kim	Lisa



Evaluator:

GG-410/610 Talk Evaluation for Speaker:

Score (1-5): 1=poor, 3=adequate, 5=exceptional		
Vital Elements	Score	Comments
• <u>Introduction</u> : Well defined & motivated problem, question, &/or objective		
• <u>Method/Data</u> : Clearly described & appear sound & appropriate for objective		
• <u>Results/Discussion</u> : Results easy to understand, geologic inferences logical & well thoughtout		
• <u>Conclusions</u> : Resounding, memorable main points		
Vital Elements Total		
Presentation Mechanics		
• Text legibility, size, amount		
• Clarity/understandability of plots/diagrams		
• Use of colors & image transitions		
• Pace & timing appropriate		
Presentation Mechanics Total		
Speaker Performance		
• Body language/motion, use of pointer, eye contact, appearance		
• Voice projection/clarity		
• Attitude (positive, confident, enthusiastic)		
• Rapport with and relatability to audience		
• Strength in answering questions		
Speaker Performance Total		
Other Notes / Constructive Criticism (continue on other side if needed)		



Comments on peer presentations:

- You are coming across as a comfortable and confident speaker
- You need more accurate hypothesis
- You need more practice
- You know what you are talking about which was best shown when you were answering questions
- Take home points were too numerous for a talk of this length
- No idea where the talk was going
- Could use more enthusiasm

...more comments on talks:

- Your name was missing from the title slide
- The wall of text was irritating to read
- Your figures helped me understand the topic better
- Crossing your arms makes it seem like you are not open to questions



Student testimonials:

- “Liked the opportunity to present in front of the class without the pressure of outside audience”
- “Liked learning writing abstracts”
- “Comments from peers were very helpful”
- “Tired of the same every year” – graduate students are required to take GG610 every year (not all students realize it, but thank to this practice our students become excellent speakers)

How we take in information during a presentation

Reference:
Albert Mehrabian

- In a speech you are only using 38% of the communication medium
- Use visuals (pictures, graphs, tables, props) whenever you can
- Ditch the bullet points