

EDUCATION

- PH.D.** **University of Hawaii, 2002**
Subject: Oceanography Advisor: Fred T. Mackenzie
Dissertation: *Apatite Dissolution Kinetics & the Long-Term Phosphorus Cycle*
- B.S.** **University of South Carolina, 1994**
Subject: Marine Science

PROFESSIONAL HISTORY

- 2018 – Present** **Associate Specialist, Undergraduate Chair, Global Environmental Science (GES) Program, Dept. of Oceanography, Univ. of Hawaii**
- 2014 – 2018** **Assistant Specialist, Undergraduate Chair, Global Environmental Science (GES) Program, Dept. of Oceanography, Univ. of Hawaii**
- 2007 – 2014** **Assistant Specialist (non-tenure track), Dept. of Oceanography, UH**
- 2005 – 2006** **Junior Researcher, Dept. of Oceanography, Univ. of Hawaii**
- 2003 – 2004** **Postdoctoral Researcher, Dept. of Oceanography, Univ. of Hawaii**

I. PROFESSIONAL ACTIVITIES

A. Program Administration

Global Environmental Science (GES) Program Administration

Summary: I am responsible for the daily management, administration, and oversight of the GES program along with supervising the department's student service specialist efforts in accomplishing various administrative tasks related to GES program and serving as the point-of-contact for all inquiries about the GES Program.

My administrative duties include, but are not limited to, the following:

- Recruitment and admission application review and processing;
- GES Academic and Career Advising Program and assigning GES majors to GES advisors;
- Program accreditation assessment;
- Scholarship award and distribution;
- Curriculum review and development;
- Communication with GES majors about school events, research opportunities, advising, etc.;
- Keeping the GES website, alumni contacts, etc. current;
- Administration of various programs such as the faculty evaluations of thesis and oral presentation, survey of student advising experience; Connecting with Alumni Series;
- Communicating and connecting with alumni;
- Chair of the seven faculty member GES Steering Committee;
- Assist Dept. Chair with GES course scheduling and the assignment of TAs and instructors;
- Supervising the department's Student Services Specialist's GES-related duties; and
- Point-of-contact for GES inquiries from prospective students, current majors, faculty, etc.

I. PROFESSIONAL ACTIVITIES (CONT.)

B. Program Development

\$810,422 NSF Award for Geoscience Program and Pathway Development

Summary: PI of award (Award #1641298) that directly supports UH Manoa (UHM) geoscience programs (e.g., GES) by building geoscience transfer pathways from the UH Community Colleges (UHCC) to UHM, especially for Native Hawaiians.

I am the UHM PI (with UHM Co-PI Professor Margaret McManus) on a multi-institutional, five-year (2016-2021) effort to create a “geoscience transfer pathway” for UHCC students, especially Native Hawaiians, to matriculate into UH Manoa geoscience majors by hosting a UHM six-week, residential summer oceanography/environmental course; and, developing new environmental science course curriculum that articulates between the UHCCs and UHM.

Four New GES Academic Concentrations

Summary: I established four new GES concentrations (began Spring 2017) offering GES majors new concentration-related, environmental science opportunities in undergraduate research, jobs, and post-undergraduate schooling.

<http://go.hawaii.edu/jWq>

I established four new GES academic concentrations with the support of the partnering unit’s faculty to accomplish the following: offer concentration-related coursework (a minimum of four courses) on a regular basis, to provide concentration-related academic and career advising, and support the GES-required faculty-mentored research thesis experience in their concentration.

- **Environmental Planning** (w/ the Dept. of Urban and Regional Planning);
- **Sustainable Tourism** (w/ the School of Travel Industry Management);
- **Environmental Health Sciences** (w/ the Office of Public Health Studies); and
- **Sustainability Science** (w/ the Hawaii Natural Energy Institute).

New UHM 4+1 Pathway

Summary: Working with the Dept. of Urban and Regional Planning, I established a 4+1 program for GES students to get a *GES BS* plus a *Masters in Urban and Regional Planning* within five years. To my knowledge, this is the first UHM cross-campus 4+1.

Working with the chair and faculty of the Department of Urban and Regional Planning and leveraging the aforementioned *Environmental Planning* concentration, I established an academic pathway for GES students to achieve a *Masters in Urban and Regional Planning* in one year. The pathway starts in the Fall of 2018.

I. PROFESSIONAL ACTIVITIES (CONT.)

B. Program Development (cont.)

Establishment of Environmental Monitoring Systems Lab

Summary: I spearheaded the establishment of a 600 ft² renovated lab space to use for instruction, workshops, and undergraduate and graduate student projects related to environmental monitoring embedded systems.

<http://go.hawaii.edu/HWj>

Working with the oceanography department, I repurposed unused laboratory space to support instruction of how to program, fabricate, design, build, power, and deploy environmental sensor packages controlled by micro-computers/controllers (e.g., Raspberry Pi, Arduino, etc.). I also sourced funding and support from different individuals to equip the lab with sensors, card key door lock, micro-computers/controllers, and a 3-D and laser printer, etc. The lab opened in the fall of 2016 in time for the first yearly offering of *OCN 418 Advanced Environmental Monitoring Systems* (see Curriculum Development and Courses Instructed).

GES Marketing, Outreach, Fundraising and Alumni Contact Efforts

Summary: I developed new, or update pre-existing, programmatic materials such as an annual report, reconnected GES alumni to the GES Program, regularly coordinate social media post (e.g., Facebook), created a foundation account to receive program donations, and helped generate over \$12,000 in program donations.

- Establishment of UHM GES Foundation Account to receive donor support
- I assisted generating ~\$12,500 in alumni and other donations to support the GES Program
- I coordinated the update and refresh of the GES website in the Fall of 2014 update
- I started a GES Facebook page that currently has 337 followers
- First GES Annual Report (AY 2016-2017 to be released Oct. 2017)

GES Alumni Series

Summary: By launching and overseeing an alumni series program in the Spring of 2015, a total of ten GES alumni (two per semester) have returned to reconnect with the program and share their undergraduate/professional experiences with GES majors. As a result, alumni are working on establishing undergraduate internships at their workplace.

I. PROFESSIONAL ACTIVITIES (CONT.)

C. Student and Faculty Services

GES Academic and Career Advising Program

Summary: I oversee the GES academic and career advising program, including the faculty GES advisors and assignment of GES students to those advisors. I directly advise up to ~35 GES majors and also started the anonymous student advising assessments. To date, 86% of all GES student advising experiences surveyed were rated as “excellent.” 95% of GES students advised by me rated their advising experience as “excellent.”

- I conduct career and academic advising for up to ~ 35 GES majors that are in their first 1 to 2 years in the program. I assign majors in their last two years to one of ~ 10 OCN faculty advisors based on the alignment of the student’s academic/career interests with the faculty advisor’s expertise.
- I monitor, coordinate, and serve as a resource to ~ 10 OCN faculty advisors for the GES program including conducting anonymous student survey of their advising experience.

New GES and General Education Curriculum Developed

Summary: I either developed or co-developed each of the following five new OCN courses and assisted in the development of two non-OCN courses. One course, OCN 105, has become very popular and is the second largest course, per section, in the School of Ocean and Earth Science and Technology (SOEST) and is a pioneer in using active learning techniques in large enrollment courses.

- OCN 101: Introduction to Environmental Science and Sustainability (Began Fall 2017)
 - Part of the aforementioned ~\$800K five-year NSF grant for geoscience pathway
 - Assisted Dr. Michael Cooney in the course proposal and content development (10%)
- OCN 105: Sustainability in a Changing World (Began Fall 2015)
 - 70% development of course content and proposal (30% by Dr. Frank Sansone)
 - 2nd largest course SOEST, per section (~122 students), and uses active learning techniques
- OCN 399^a: Introduction to GES Thesis/Topic/Mentor (Began Spring 2015)
 - Assisted Dr. Michael Cooney in the course proposal and content development (10%)
- OCN 399^b: Finishing Strong and Transitioning (Began Fall 2016)
 - 100% development of course content
- OCN 418: Advanced Environmental Monitoring Systems (Began Fall 2016)
 - Course operates in conjunction with the new Environmental Embedded Systems Lab
 - Assisted with development of course proposal (80%)

I. PROFESSIONAL ACTIVITIES (CONT.)

C. Student and Faculty Services (cont.)

Undergraduate Courses Instructed

Summary: On average every semester I teach two GES courses (OCN 100 & 399^b) and co-instruct at least one other general education courses (OCN 105). When appropriate, I also teach OCN 499 (undergraduate student research) and serve as the course coordinator for OCN 418. My average instructor evaluation from six semesters (F14 to S17) of instruction ranges from 4.0 to 5.0 (on a five-point scale with 5 the highest rating).

Table. Instructed courses, % instructed, number of students, and instructor rating on 5pt scale.

Sem/Year	Course ID	Course Title	Credit Hours	% Taught	No. Students	Grade (0 to 5)
F17	OCN 100	Global Environmental Science Seminar	1	100	26	In progress
	OCN 105	Sustainability in a Changing World	3	25	118	
	OCN 399 ^b	Finishing Strong & Transitioning	1	100	6	
	OCN 499	Undergraduate Thesis	2	100	1	
S17	OCN 100	Global Environmental Science Seminar	1	100	10	5.0
	OCN 105	Sustainability in a Changing World	3	25	122	4.4
	OCN 399 ^b	Finishing Strong & Transitioning	1	100	6	NA
F16	OCN 100	Global Environmental Science Seminar	1	100	18	4.9
	OCN 105	Sustainability in a Changing World	3	25	121	4.4
	OCN 399 ^b	Finishing Strong & Transitioning	1	100	4	NA
	OCN 418	Advanced Env. Monitoring Systems	3	5	10	NA
	OCN 499	Undergraduate Thesis	3	100	1	NA
S16	OCN 100	Global Environmental Science Seminar	1	100	6	5.0
	OCN 105	Sustainability in a Changing World	3	25	48	4.2
	OCN 499	Undergraduate Thesis	3	100	1	NA
F15	OCN 100	Global Environmental Science Seminar	1	100	29	5.0
	OCN 105	Sustainability in a Changing World	3	25	48	4.0
F14	OCN 100	Global Environmental Science Seminar	1	100	23	5.0

Improving Student Grades Using an Early “At-Risk” Grade Alert System

Summary: I secured and co-administrate an early “at-risk” grade alert for all SOEST undergraduates (including GES students). Final grades improved for 66% of the students that received an early “at-risk” grade alert during the semester.

- SOEST GradesFirst[®] (GF) Implementation:** I am 100% responsible for securing this opportunity for SOEST and 50% responsible for implementing this ongoing effort to improve SOEST undergraduate student learning outcomes along with retention and graduation rates. I analyzed all the SOEST results and the primary finding from the first academic year (‘16-‘17) was that 66% of SOEST students improved their final grade that (1) received an “at-risk” progress report from their instructor, and (2) met face-to-face with a SOEST academic advisor about strategies. The results are being used to inform UH administration decisions about campus-wide implementation of early intervention efforts.

I. PROFESSIONAL ACTIVITIES (CONT.)

C. Student and Faculty Services (cont.)

Providing Letters of Recommendation and References

Summary: I write recommendations for graduate school, job, scholarship, etc. Number of letters by year: 2017 = 24 (to date); 2016 = 28; 2015 = 9.

Improving and Facilitating GES Research Experiences

Summary: (1) I started and oversee a successful program for faculty assessments of GES theses and oral presentations. (2) I coordinate and oversee a successful effort that has both improved and expedited the process of GES students finding a research project and faculty mentor. (3) Compared to prior to my efforts, GES student participation and success in securing undergraduate research funding has increased by 600% and as a result 19 students have collectively raised over \$77,000 for their student research.

- **Pre- and Post-Assessment of GES Theses and Oral Presentations.** In the Fall of 2014, I started a program where an external faculty member (not involved with the student's research) evaluates the GES student's (1) draft thesis, and (2) practice oral presentation. The external reviewer then goes over their comments with both the student and their faculty research mentor. The reviewer also assesses the final thesis copy and final presentation to determine if any improvements or gains have occurred as a result of the assessment. To date, 34 students have participated and all have improved the quality of their final thesis and oral presentation.
- **Facilitating Finding a Faculty Research Mentor and Thesis Project.** Working with the lead OCN 399^a instructor, I helped developed (10%) the OCN 399^a course to facilitate GES majors find a research project and mentor. Furthermore, I track and advise those GES students (e.g., 2nd or 3rd year) ready to benefit from OCN 399^a to enroll in the course.
- **Increasing Undergraduate Research Support.** Starting in the Fall of 2015, I began tracking students that successfully found their faculty research mentor and research project to then facilitate their participation in UHM undergraduate research funding opportunities. Prior to starting my efforts in the Fall of 2015, six GES students over eight semesters (2011-2014) submitted proposals and were awarded support (average of 0.75 awards per semester). In just four semesters (F15, S16, F16, S17), 23 proposals have been submitted to UHM's Space Grant and UROP programs with 19 awarded a total of \$77,794 in student research support (average of 4.75 awards per semester) -- an increase of over 600% in per semester award rates compared to 2011-2014.

	Fall '15	Spr. '16	Fall '16	Spr '17	Total	vs. 2011-2014
# Funded Proposals	9	4	4	2	19	6
# of Total Proposals	8	5	7	3	23	NA
Amount Awarded (\$)	\$24,711	\$18,075	\$25,008	\$10,000	\$77,794	NA

II. SCHOLARLY ACTIVITIES

A. Research & Evaluation

GES Student Performance and Retention Analysis

Summary: Key findings and trends resolved from a performance and retention analysis of 2009 to 2015 data for GES majors led to following: (1) a NSF grant to increase Native Hawaiian participation in GES specifically and other SOEST geoscience programs (see page 2 of CV); (2) efforts that have improved and facilitated the GES research experience (see page 6 of the CV); and (3) an early warning system that has improved student outcomes (see page 5 of CV).

My initial evaluation for years 2009 to 2015 compared ~160 total GES majors (~80 that graduated with a GES degree and ~80 that transferred prior to achieving their degree) and ~25 student-related values (e.g., a transfer or first-time student, geographic origin, GPA, gender, number of credits when entering program and leaving, ethnicity, grades in major-specific courses, if and when began undergraduate research, time in the GES Program, etc.). Moving forward in time, new student data is continually added and used to refine, when appropriate, the various programmatic approaches to improving retention, undergraduate research performance, recruitment of Native Hawaiian students, etc.

Yearly GES Alumni Survey

Summary: Since 2014, I've conducted a yearly GES Alumni survey (using free GES Program t-shirts as incentives) to solicit alumni comments and ideas on ways to improve the program. My efforts to create the aforementioned four new GES academic concentrations and the new "4+1" were, in part, motivated by alumni feedback.

Ocean Acidification Research

Summary: Although my tenure and promotion evaluation is solely based on the performance of my undergraduate chair duties related to the GES program (and not on oceanographic-related research, grants, publications, etc.), I still maintain a research program investigating (1) the kinetics of dissolution of magnesian calcites compositions in seawater solutions under rising atmospheric CO₂, and (2) the computer modeling of Earth's ocean-atmosphere history. Currently one GES major is doing their thesis research project in my lab. I also use my research program as a means to introduce any interested undergraduates to research. By doing so, I have engaged two other GES students in their initial research experiences that are now completing their GES-required thesis projects with other faculty mentors.

II. SCHOLARLY ACTIVITIES (CONT.)

A. Research & Evaluation (cont.)

Faculty Assessment of GES Theses and Oral Presentations

Summary: Faculty assessments demonstrated improvement from pre (draft thesis and practice oral presentations) to post (final thesis copy and GES Symposium presentation) for all 34 GES students that have participated in pre/post evaluations so far. The oral results are being used to inform curriculum changes in two GES courses.

As detailed above in *Improving and Facilitating GES Research Experiences*, in the Fall of 2014 I started a program where external faculty (i.e., not the student's faculty mentor for research) conduct pre- and post-assessments of the student's theses and the oral presentations with the purpose of improving student learning outcomes, evaluating program outcomes, and informing changes to improve relevant GES curriculum. Oral assessment results have already led to curricular changes in two communication-focused GES courses (OCN 100 & OCN 490). The pre- and post-assessments for both theses and oral presentations continue to be collected.

GES Academic and Career Advising Assessment Effort

Summary: 95% of the students I have advised rate their experience as "excellent." Overall, 86% of GES students rate their GES advising experience as "excellent."

I started an anonymous online survey to measure the advising experiences of GES students. The survey results are used to monitor the effectiveness of faculty advisement, switch students to another advisor that better fits their needs, etc.

Table. Overall Evaluation of Advising Experience from GES Students.

Advisor	Excellent	Good	Fair	Poor
All GES Advisors Combined	86%	12%	2%	0%
Michael Guidry	95%	3%	2%	0%

B. Professional Development

Workshops

Summary: I have attended three workshops: one on curriculum development and two on the future of undergraduate geoscience education.

- 2015 NSF ENGAGE Workshop, Washington, DC
- 2016 Heads and Chairs Summit: Future of Undergraduate Geoscience Education, Austin, TX
- 2017 Heads and Chairs Workshop, Albuquerque, New Mexico

II. SCHOLARLY ACTIVITIES (CONT.)

B. Professional Development (cont.)

Conference Presentations

Summary: I have given two poster presentations at two international geoscience-related conferences (ASLO 2017 and EER 2017) and one poster presentation at a UHM-sponsored conference (awarded 1st place for “Best Use of Research Results”).

- 2017 Association for the Sciences of Limnology and Oceanography, Honolulu, HI
- 2017 UHM Assessment for Curricular Improvements
 - Awarded 1st place for “Best Use of Research Results”
- 2017 Earth Educators Rendezvous, Albuquerque, New Mexico
- 2018 American Geophysical Union Annual Meeting, Washington, D.C.

III. SERVICE ACTIVITIES

Summary: In recognition of my expertise in undergraduate education-related subjects of research, instruction, student retention, curriculum development, and general education curriculum, I serve on five university boards/committees including chair of the faculty-driven GES Steering Committee. I currently mentor an undergraduate research experience and have previously served on two dissertation and hiring committees. Through ocean science-related education outreach, I have interacted with local primary school classes.

- **Chair: Seven Member GES Steering Committee (Began Fall 2014)**
- **SOEST Academic Council Member (Began Fall 2014)**
- **General Education Committee Foundations Board Member (Began Fall 2016)**
- **Undergraduate Research Office (URO) Faculty Advisory Board (Began Summer 2017)**
- **Undergraduate Research Opportunities Council (UROC) (Beginning Fall 2017)**
- **Dissertation Committees and Undergraduate Research Mentoring:** I have served on two UHM dissertation committees and am currently mentoring one undergraduate in research.
- **Hiring Committees (Spring 2017):** I have served on two university hiring committees.
- **Curriculum Development (Fall 2016):** I assisted two faculty members outside my unit in developing their (successful) undergraduate course proposals.
- **Undergraduate Research Opportunities Program (UROP) Proposal Reviewer (Fall 2015):** I served as a faculty reviewer for three UROP proposals during the Fall of 2015.
- **Ocean-science Education Outreach (Fall 2016 and Spring 2017):** Ocean science-related guest talks and interactive class activities at kindergarten, 1st, and 2nd grade classes.