

RECEIVED



Office of the Dean

14 OCT 14 P 4 05

University of Hawai'i
October 13, 2014

MEMORANDUM

MANOA CHANCELLOR'S
OFFICE

TO: Reed Dasenbrock, Vice Chancellor for Academic Affairs

VIA: Brian Taylor, Dean of SOEST and Interim Vice Chancellor for Research

VIA: Chip Fletcher, Associate Dean, SOEST

Handwritten signature of Brian Taylor in blue ink.

FROM: Chris Ostrander, Assistant Dean, SOEST

Handwritten signature of Chris Ostrander in blue ink.

SUBJECT: SOEST External Review

The School of Ocean and Earth Science and Technology (SOEST) found the 2013 external review to be a productive and beneficial investment of time and resources. The recommendations of the external review committee (ERC), along with the observations, praise, and assessment of the School contained within the external review report have helped the School to guide, plan for, and implement changes to policy and practice across the School, and within individual units.

The initial written response from the School to the ERC report, provided to the VCAA in October of 2013, addressed each specific recommendation of the ERC. At that time, some changes had already been implemented across the School and within units that addressed specific concerns of the ERC. Progress reported at that time, including the fulfillment of some ERC recommendations, is not addressed again in this update.

Some of the ERC recommendations touch on issues that are outside the School (and UHM) area of authority. Those recommendations were identified in the October 2013 report response and are not repeated within this update.

In addition to providing short-term updates on actions tied to specific recommendations of the ERC, the October 2013 report response detailed, where appropriate, the recognition of the School and/or unit that changes were necessary and detailed specific commitments that would be implemented over the subsequent 12 months.

Below is a summary of progress towards those commitments made by the School and its four academic departments: Geology and Geophysics, Oceanography, Atmospheric Sciences, and Ocean & Resources Engineering.

Not all ORUs within the School were issued recommendations by the ERC. Of those that were, the recommendations of the ERC were either completed by or addressed in the



October 2013 report response, or were recommendations for action outside the scope of School or ORU authority; thus, they are not individually identified in this report.

1. Progress Towards School-level Commitments

Post-doctoral stipends: In 2006, SOEST instituted a minimum compensation level for postdoctoral scholars on research grant stipends of \$45k. In the past seven years, individual PIs and units have paid their postdocs at various levels above the minimum, to remain competitive with peer institutions, but the School minimum has not been adjusted. Following the recommendation of the ERC, the School has adopted a new minimum payment level of \$55k, and will regularly review that level to ensure postdocs receive suitable compensation, and to ensure we remain competitive in attracting top talent. In that regard, we have increasingly had to request exceptions from the VPRI to the maximum UH level of \$60K, that has not been increased for more than a decade.

Sexual harassment, discrimination, and workplace violence: Throughout AY 12/13, all graduate students, faculty, and staff within SOEST were required to attend one of twelve SOEST training sessions taught by the UHM Gender Equity Specialist, focused on sexual harassment, discrimination, and workplace violence. All new staff, faculty, and graduate students are required to attend the same training upon their arrival, and existing members of the SOEST community are given knowledge updates through focused training and discussion sessions. All academic departments within the School now include in their student handbooks and on their unit websites information and resources addressing sexual harassment, discrimination, and workplace violence. Harassment of any kind will not be tolerated within the School.

School-level fundraising plan: The School has hired an executive-level Director of Strategic Initiatives and External Relations, who has a primary focus of advancing development and partnerships for the School. Complementing this position, the School has worked with UHF on the hiring of an Executive Director of Development, based within UHF, focused in-part on SOEST fundraising and development. These two executive positions, working in concert with other members of the SOEST Dean's Office and UHF development units (Scholarships, CRF, OEPG), have significantly changed the culture of philanthropic engagement within the School, including through the launch of a major undergraduate scholarship campaign for the School this fall. Illustrative of the School's development success is the recent receipt of the largest private gift in the University's history—a \$40M gift from the Simons Foundation to advance microbial oceanographic research.

Enhancement of GES and other degree programs: The ERC recommended the School explore the enhancement of the GES program, through potential development of a five-year BS/MS program, the development of a BA in Global Environmental Policy, and the possibility of a GES certificate program. Additionally, the ERC recommended that SOEST explore enhancing other degree programs within the School using the GES model, including the development of more specialized professional training programs.

The GES Steering Committee is enthusiastic about developing a 5-year GES combined B.S./M.S. degree, and has engaged faculty from all divisions in informal discussions. The degree would likely involve a 5th year of coursework and an extension of the GES thesis. Our original plan included coursework that would prepare students for jobs in areas such as environmental economics and planning, resource management, and environmental consulting. It would include a choice of focused science courses covering areas such as GIS, soil science, hydrology, biofuels, and water quality. Such a degree would be very different from the current M.S. in Oceanography offered by the department.

In the past year, interest has been expressed by several Faculty in designing additional themes for the 5th year of coursework, to enhance the students' backgrounds in specific fields to better prepare them for graduate work. As an example, many GES students have expressed an interest in pursuing advanced degrees in physical oceanography, but most do not have sufficient preparation in physics and mathematics to compete in graduate school applications. A 5th year in the GES program could act as a bridge to our Ph.D. program and to degree programs elsewhere.

Jane Schoonmaker has chaired the GES program since 2003. Given her retirement on September 1, 2014, a formal committee to plan the 5th year joint degree program has been delayed. The new GES Chair, Dr. Michael Guidry, will head a departmental committee to explore options and begin the planning process for a 5-year GES combined B.S./M.S. degree this academic year.

Dr. Michael Roberts of the Economics Department has begun the formal planning process for a B.A. in Global Environmental Policy (GEP). Discussions have continued in the past year on integration of GES and the new GEP degrees, as the proposed GEP curriculum shares several elements with GES. An introductory seminar would be offered in conjunction with our OCN 100, and students would meet jointly several times during the semester to consider environmental topics that bridge the natural and social sciences. Like GES, GEP would require a senior research thesis. Students in both programs would be encouraged to pursue research topics that integrate both fields. It is anticipated that Dr. Guidry will continue this collaboration with the planning committee for the GEP degree.

Over the past year, the Department of Geology and Geophysics has welcomed the first students pursuing the new Professional Master of Geosciences degree. This degree program was developed in consultation with local partners and stakeholders and is designed to prepare geoscientists to enter the workforce upon graduation.

Name change for Department of Meteorology: The Department of Meteorology requested, and has been approved, to be renamed the Department of Atmospheric Sciences. The re-designation of the names of the BS, MS and PhD degrees to Atmospheric Sciences and course labels from MET to ATMO are proceeding and should be complete by the Spring 2015 semester. The Department is also moving ahead with a MS Plan B track, with approval expected by the Fall 2015 semester.

Publication of course schedules: All academic units within SOEST now publish their course schedules one academic year in advance, to allow all students the necessary time to plan for and adhere to graduation requirements and schedules.

Appointment length of Department Chairs: Following the ERC recommendation, the Dean lengthened the appointment of Department Chairs from three to five years. We were subsequently informed, however, that the CBA limits single terms for Chairs to three years. Instead, therefore, we plan to renew Chairs for a second or extended term, subject to satisfactory performance.

Strategic Planning: With respect to academic affairs, the SOEST Deans office has this month established an Academic Committee to develop plans and policies related to:

- expanding student recruitment;
- developing criteria to guide the new SOEST scholarship program for first year students;
- developing a plan to admit self-funded graduate students;
- new degrees and degree pathways in SOEST;
- program learning assessment;
- enhancing learning and innovative classroom methods;
- outside the classroom teaching and community efforts;
- faculty workload policy;
- student advising, mentoring, and counseling.

2. Progress Towards Oceanography Commitments

Time to degree: Since the external review, the department has substantially reduced the coursework requirements for students entering the Oceanography Ph.D. program who already have a MS in Oceanography. Additionally, the department has combined its two Ph.D. examinations (Qualifying Exam and Comprehensive Exam) into one exam, which is administered prior to the completion of the degree. These two changes have lessened pressure on student time, allowing an increased focus on research and dissertation completion, and should help in reducing the Ph.D. time to degree over the coming years.

It currently takes an average of 3-4 years for a graduate student to complete a MS degree in Oceanography. This is quite typical for oceanography students at our peer institutions. The difficulty of scheduling oceanographic fieldwork at sea typically adds a year toward degree time compared with other sciences requiring (more accessible) fieldwork. The Department may also give credit for previous coursework and experience - if approved by the current instructor of the UH version of the course and the Department Chair. The Department will present this option to future incoming graduate students during orientation.

Atmospheric and marine chemistry vacancies: Both atmospheric chemists within the department retired, and budget pressure on the University and School has prevented the department from hiring replacements for both positions. Oceanography has been

successful in recruiting a tenure-track faculty member in Marine Geochemistry, with an expected start date of August 2015.

Facilities repair and maintenance: In 2013-2014 the Marine Science Building underwent substantial repairs to infrastructure that were long overdue. An exterior paint job became a major repair effort when it was discovered how badly the concrete had deteriorated as a result of too many years of deferred maintenance. The air conditioning system in MSB has been completely refurbished, windows have been rebuilt, and all stairway doors have been replaced. Additional office space has been made available through the enclosure of underutilized hallway staging space on the 2nd floor, and ground-floor shop space has been converted to a shared use, high-bay, staging facility. Life in MSB was disrupted for many months, but the work is now essentially complete.

3. Progress Towards Ocean and Resources Engineering Commitments

Experimental lab facilities: ORE requires experimental lab facilities to meet ABET teaching expectations, as well as to support research. Arrangements have been made to use the CEE Hydraulics Lab for ORE teaching. Further, CoE is currently taking steps to install a new wave generator in the larger flume and bring that facility into operation for research and teaching (expected early 2015); it too will be available for ORE use. These are all positive steps addressing ORE laboratory space, and we will continue to work with the respective Deans and all involved to further facilitate the capabilities of the Lab for the benefit of all users.

The Kilo Nalu cabled ocean observatory (just off Kaka'ako, 12 m water depth) is being refreshed Fall 2014 (all new shore station, cable, node) and will again serve students for instruction and research.

ORE now has hired a half-time engineer who will assist in instructional aspects of lab/field work (e.g., instrumentation in the Hydraulics Lab, Kilo Nalu class work), and who will also be available for research related work.

Upon the closure of HURL, it is anticipated that the new UH remotely operated vehicle (ROV) will slowly form the nucleus of a new group that will catalyze research and student involvement in a similar way as HURL has done over the years.

ORE Undergraduate Program: The development of a complete undergraduate degree program is being considered by the department, and would be achieved through the addition of new undergraduate courses gradually, every year, until a full roster is available. In Spring of 2015, ORE will offer a 200-level course entitled "Man in the Sea".

Consolidation of ORE Students and Faculty: The renovation and expansion of Holmes Hall has been delayed, which limits the ability of the Department to acquire any additional space within the envelope of the building. Ground floor, high-bay staging space in MSB and HIG has been made available by the SOEST Dean's Office for ORE and shared use, and an

additional ~1000 ft² of co-located office and lab space on the ground floor of HIG has been re-assigned to ORE.

4. Progress Towards Geology and Geophysics Commitments

Expand introductory course offerings: GG has greatly expanded the range of introductory level courses available to undergraduates, adding six new 100-level courses taught at frequencies ranging from every semester to alternating years:

- GG102: Introduction to Global Change (offered alternate years)
- GG103: Geology of the Hawaiian Islands (offered alternate years)
- GG104: Volcanoes in the Sea (offered alternate years)
- GG105: Voyage Through the Solar System (offered every semester)
- GG106: Humans and the Environment (offered alternate years)
- GG130: Geologic Hazards (offered alternate years)

Additionally, GG faculty have taken on additional teaching, with all faculty regularly teaching required undergraduate coursework.

5. Progress Towards Atmospheric Sciences Commitments

Since January 2014 there has been progress on many of the things identified as concerns by the ERC, such as scheduling and range of offered classes, student/faculty communication, facilities, and the building of a cohesive atmospheric sciences community within the Department. Recent changes in advising will begin showing impacts this fall. More important issues such as enrollments at the undergraduate and graduate levels have the potential to be partially addressed by the agreement with NUIST, and other universities. The Department may see a return to 40 graduate students, as the faculty recruits needed talent to counteract losses in the IPRC post-doc population. The small size of the undergraduate program remains a challenge. Atmospheric Science requires 67 hours of courses which is double many other non-science degrees. The small population of Hawaii and the poor public school preparation in mathematics and sciences is difficult to overcome quickly, though the Department continues to explore ways to boost undergraduate enrollment, and stands to benefit from School-level undergraduate scholarships to recruit new students.

Small program size: We have signed a joint “3+2” program with the Nanjing University of Information, Science and Technology (NUIST) that will allow NUIST students to complete a plan “B” master’s degree by enrolling at the University of Hawaii for their last two years of a five year program. We are also exploring the possibility of enacting a similar program with a University in Taiwan, as well as additional universities in Mainland China. The Department is also designing a BA in Atmospheric Sciences for those who wish to teach in primary and secondary schools. With decreased funding to the IPRC and thus less post-

docs supported by JAMSTEC we also expect to see more graduate students supported within the Department.

Our experience with students at the SOEST Open-House reveals that the enthusiasm for the natural sciences seen in the elementary school students is largely dissipated by the end of high school. We look forward to the recruitment of merit scholars through the new SOEST undergraduate scholarship.

Student/Faculty communication and advising: Over the last few years the undergraduate advising has fallen on the shoulders of Leona Anthony; faculty members that have been assigned the position have not fully understood their responsibilities or have spent a disproportionate time on their research projects. This is now changed. There are four faculty members that each advise 5-7 undergraduates. Meetings are required each semester with the student. The Chair also meets with the students and the advisors to make sure that the advising is similar throughout the Department.

At the graduate level the Chair will meet individually as well as in a group with all new students. At this meeting the new students will learn what is expected of them and they will be encouraged to interact more regularly with their advisors. The faculty, in turn, will be reminded that more informal contact with their students is good for their understanding and morale. They will also be reminded that they should know the basic requirements for a degree and be sure that their students are following a viable path toward their degree completion.

Student/Faculty engagement: A lounge in the graduate student and visitor space in the central room of the third floor of HIG is now available to undergraduate students within the department. Additionally three computers, one donated by the Chair, have been made available to the undergraduates in this lounge area. There are also several carrels in more quiet areas of the central room that are for undergraduate use.

The lounge area has been revitalized with coffee and tea available as well as snacks. All the undergraduates and graduates are welcome. There have been a luncheon and a party hosted by the Chair for everyone to meet informally; these types of events will also occur in the Fall semester. The Chair now meets with all incoming graduates to make them aware of what is expected of them; the Chair and the Graduate Chair will also meet with all other students to discuss their progress or lack thereof in the program.

NWS certification: The undergraduate program satisfies requirements for NWS certification. The undergraduate program has long been designed to offer considerable flexibility to cater to the individual career paths of the students. There are 15 hours of electives that contribute to the major; the choices depend upon the direction the student has chosen. Here the student and advisor discuss what are the most relevant choices for graduate school, for private employment or for employment with the NWS. The Department offers all the courses needed to join the NWS and often has had students serving as interns either at the Honolulu Forecast Office or the Pacific Region Headquarters located downtown.

Improve undergraduate teaching: Team-taught classes have been reduced, especially for undergraduates as they have the greatest difficulty adapting to varying expectations of multiple instructors. Additionally, as detailed above, all undergraduate students are now assigned a faculty advisor, who can assist in course selection, research project identification, and help with resolving issues throughout the undergraduate experience. New courses are being developed and offered to undergraduates, by some of our most capable faculty, including courses focused on Hawaiian weather and climate. As stated earlier, computers, desks, and lounge space have been made available for undergraduate students to enrich their experience, and facilitate their success within the department.

Improve student opportunity for research: Across the department we are working with faculty and students to identify promising partnerships for student achievement. Recent engagement with the NWS and NOAA has allowed graduate and undergraduate students to conduct research with mobile Doppler radar, and participate in flights on the NOAA Gulfstream. Additionally, the department has recently initiated a major research partnership to develop large-scale Earth Climate modeling capabilities---a partnership that will provide substantial opportunity for students to engage in relevant and timely research related to future climate.

Increase course choices: The Chair has examined the distribution of classes for both the undergraduate and graduate students and has rearranged the order of classes. Each semester the graduate students can choose between two introductory and two advanced classes. Over two years each graduate student will have the choice of 13 different classes. Timing of the classes is now such that they do not run back to back for three in a row. There also has been a change in the undergraduate course with some advanced classes moving to the fall so the final semester for the seniors will not be so heavily scheduled.

Additionally, three new graduate classes have come on line and a fourth is under discussion. The graduate students identified the following priorities for new classes: Advanced synoptic meteorology and forecasting (9 votes), Programming techniques, and MATLAB use (6), Numerical modeling (5), Climate and climate variability (4), Advanced satellite (3), Numerical Weather Prediction (3). Two of the new classes coming on line deal with climate variability and satellite observations.

Schedules for both graduate and undergraduate courses are published one year in advance

Facilities for teaching and research: While the bulk of facilities maintenance rests outside the control of the Department (elevators, HVAC, doors, plumbing), we have made investments to improve our space for teaching and scholarship, including updated seating in our two classrooms and better desks for a number of offices. These improvements have come courtesy of the NWS regional office who gave their nice furniture to the NWS Office who in turn passed some of their items along to us. The Dean also generously supplied some funds for audio-visual updates. We used these funds to acquire three SMART boards which are the state-of-the-art display system now being used at Manoa and many other universities across the United States. These boards provide a larger and clearer view than

typical projectors and allow the professor to draw on his/her power points in real time and have it all recorded for the students.

6. Other Independent Evaluations of Program Quality

UHM has contracted with Academic Analytics to provide independent evaluations of Faculty/Department/College scholarly productivity in a national context. All four Departments in SOEST are in the top ten Departments at UHM in terms of their national ranking within their disciplines.

Academic Analytics Faculty Scholarly Productivity Index (FSPI)

<u>Dept Name</u>	<u>Taxonomy Level 01 Name</u>	<u>FSPI Score</u>	<u>Rank In Discipl.</u>	<u>Percentile In Discipl.</u>
Educational Administration	Educational Leadership& Admin	1	4	96.5
Second Language Studies	Teacher Edu Specific Subjects	0.8	7	92.11
Communication Sciences & Disorders	Communication Disorders & Sci	0.7	5	93.75
Accountancy	Accounting	0.5	12	92.41
Oceanography	Marine Sciences	0.4	7	86.05
Information Technology Management	Info Technology/Info Systems	0.4	12	84.06
Geology & Geophysics	Geology/Earth Science, General	0.4	37	78.82
Meteorology	Atmospheric Sci & Meteorology	0.3	12	79.63
Ocean & Resources Engineering	Environmental Engineering	0.3	26	79.17
Geology & Geophysics	Geophysics	0.3	5	70.59
Anatomy Biochem Physiol ReproBio	Anatomy	0.3	17	72.88
Economics	Economics, General	0.2	42	80.84
Nursing	Nursing	0.2	59	64.42
Oceanography	Oceanography, Physical Sci	0.2	10	68.97

The **NTU Performance Ranking of Scientific Papers for World Universities 2014** has just been published. UH/SOEST is among stellar company in the top 20 world universities for our work in the geosciences (earth, ocean, atmospheric and planetary sciences). UH ranks 203rd overall and 80th in the United States. The only other science subject in which UH ranks in the top 100 world universities is Environment/Ecology – to which SOEST also contributes significantly.

1	University of Colorado – Boulder	11	University of Oxford
2	California Institute of Technology	12	University of Cambridge
3	Swiss Federal Inst. Tech - Zurich	12	Massachusetts Inst. of Technology
4	University of Washington - Seattle	14	University of Bristol
5	Columbia University	15	Pierre et Marie Curie Univ.
6	University of California - Berkeley	16	Utrecht University
7	China University of Geosciences	17	University of Hawaii
8	The University of Tokyo	18	Harvard University
9	University of California - San Diego	19	University of Leeds
9	Univ. of Maryland - College Park	20	The Australian National University