SUSTAINABLE SCIENCE MANAGEMENT
BAS PROGRAM

2019
ANNUAL REPORT OF PROGRAM DATA

UNIVERSITY of HAWAI'I®
MAUI COLLEGE

Sustainable Science Management BAS Program

1. Program Description

a. Current catalog description: The Sustainable Science Management (SSM) program, leading to a baccalaureate degree, provides a variety of options to students seeking employment in the rapidly expanding field of sustainability. Coursework covers important contemporary topics including but not limited to energy, ecology, business and management, water and wastewater, agriculture, waste-management, economics, policy, the built environment, natural and social science; all in the context of case studies in the larger interdisciplinary field of sustainability. Students develop systems thinking and analytical skills, which will enable graduates to apply learned principles to the changing and complex issues of the future. The program is designed to equip students with the fundamental skills necessary to bridge disciplines and to facilitate sustainable solutions and operations for any organization or community. (For SSM PLOs see 3.A below).

b. It does not seem that SSM has ever had a formal Mission Statement.

c. The SSM website was restructured and published in 2015. However soon afterwards the UHMC site was also rebuilt and this impacted the SSM site so a portion of it is intelligible. We have asked for help to get it repaired but that has not happened. This is a priority as it has shown to big a big assistance in recruitment.

d. The program description above is the one most recently developed and is part of a much larger program update including new courses, changes to required courses and prerequisite modifications, transfer requirements and the overall program map. These changes have been approved by the campus Curriculum Committee and Chancellor and should be included in the UHMC 2020-21 catalog.

2. Analysis of the Program

a. New base levels used by the system have provided a clearer and stronger assessment of SSM indicators. SSM is now presented a *Healthy* in Demand and Effectiveness categories, as well as overall. Demand for jobs for sustainability skilled graduates has increased as awareness of its broad applicability across the employment spectrum has grown. The program has worked to match coursework

with student demand, and Effectiveness is likely grow even stronger if marketing strategies can be implemented. The Efficiency indicator is *Cautionary*, which is not completely unexpected due to overall enrollment decline over the past few years. However, a deeper look into the SSM pipeline appears to show that trend is also changing and student levels may be starting to rise.

b. While the bulk of SSM courses are conventionally taught, SSM 101 is currently being taught as a hybrid/online for the 2d time. It has had mixed success. For one, it was intended to be available to off-islanders only to enhance statewide exposure, but this has not happened administratively. Student response has been OK, but clearly face-to-face is stronger, and preferred by students when available. This makes sense for SSM as round table discussion, group critical thinking, area field trips and the unique Maui context are strongpoints of the program.

c. SSM students have benefitted and shown their appreciation for more coursework which involves field activities and better internships. Most recently an SSM Mentor has become available through Student Services, a very helpful asset.

3. Program/Student Learning Outcomes

1. SSM PLOs

   i. Articulate in context trends in and the existing state of relevant ecosystems as influenced by historic technological, economic, ethical and legal/political infrastructure.

   ii. Utilize systems approaches to analyze the function, inter-relationships and limits of natural and human ecosystems and activities.

   iii. Apply advanced sustainability science skills to achieve comprehensive and durable solutions for a broad range and scale of organizational problems.

   iv. Assess the feasibility of proposals using conventional and emerging sustainability assessment measures.

   v. Identify and explain points of alignment between traditional Native Hawaiian values and sustainability goals as a means of pursuing sustainability principles.

   vi. Synthesize theories and learned skills in real world situations through transdisciplinary engagement with communities, organizations and businesses.

2. Assessment last year consisted of rewriting the SSM PLOs and all are now new.
3. Prior PLOs were reviewed and condensed where possible. Draft new PLOs were circulated among faculty, program counselors, campus assessment staff and the SSM Advisory Committee.
4. New PLOs were submitted and approved (as listed above). Work on linking PLOs and course learning outcomes has commenced.
5. Assessments undertaken beginning this year will include a stronger attempt to match program and course objectives as a hierarchy, as well as to review assessment methods in attempt to improve all at the same time.

4. Action Plan

a. The following are program priorities for the coming year:
    i. Implement an advanced PLO/SLO and assessment comprehensive approach which provides more clarity and transparency in student learning and assessment.
    ii. Improve program marketing New materials and website content are being developed and published (subject to funding). A basic package of materials and presentations is also under development.
    iii. Curriculum We expect to add one additional Native Hawaiian-related upper division course to improve program performance for that stated PLO.
    iv. Island Sustainability Collaborative The generic model for this campus-based entity and function has advanced and we are now seeking funding to implement it at a primary level. Grants and partners are being evaluated.
    v. Faculty are active in conference presentations, though there is a lack of strongly related conferences statewide which can lead to relevant professional development. Opportunities and funding will be continually pursued.
b. Both the UH System and UHMC have consistently included sustainability as a goal in their planning efforts. SSM faculty and students have been deeply involved in these efforts and remain committed to expanding local awareness of sustainability as a profession and community support mechanism. These will both improve island efforts and result in ‘mainstreaming’ the use of expertise held - often uniquely - by

SSM graduates, which should provide constant generation of new employment opportunities. This is consistent with contemporary sustainability research.

5. Resource Implications (physical, human, financial)

Near term there is little likelihood of implications to physical requirements of the program, though this could become essential to the Sustainability Collaborative, most likely based on external funding.

In a longer term some laboratory space and equipment may be helpful to individual courses and activities.

While SSM relies on some Lecturer support to teach specific courses, there is little expectation that staffing increases will be required. In the event of the new course, which would require specialized expertise, the program would require a showing of adequate student interest prior to seeking Lecturer funding.

Specific Funding requests:

i. Funding for student internships/assistance - $5,000/semester.
ii. Marketing package – updated materials and web site - $5,000 one time
iii. Faculty Professional Development - $2,000/semester

6. SSM Program Data – UHMC Report

SSM	69 Total TEs taught in SSM				
		0 TEs taught by non-SSM BoR instructors			
		4.5 TEs taught OUT to NSCI			
	550 total SSH taught from SSM courses				
		Estimated Tuition Total of $132,511.5			
		Estimated Salary Total	137598.304		
		379 SH taught to SSM majors			
		171 SH taught to Non-SSM majors			

7. SSM ADRP DATA Report

College: University of Hawai'i Maui College
Program: Sustainable Science Management
Status: Report Complete

Program Quantitative Indicators

STEM Major

Overall Program Health: Healthy

Workforce Alignment: Classification of Instructional Programs (CIP) -to- Standard Occupational Classification (SOC)

Sustainable Science Management
CIP Code = 30.3301

25-1099 - Postsecondary Teachers

Print ARPD

	Demand Indicators	2016 - 17	2017 - 18	2018 - 19	Demand Health
1.	New & Replacement Positions (State)	483	477	481	
*2.	New & Replacement Positions (County Prorated)	51	42	44	
3.	Number of Majors	39	49	55	
3a.	Number of Majors Native Hawaiian	9	11	10	
3b.	Fall Full-Time	58%	53%	53%	
3c.	Fall Part-Time	42%	47%	47%	
3d.	Fall Part-Time who are Full-Time in System	11%	6%	4%	
3e.	Spring Full-Time	46%	46%	43%	Healthy
3f.	Spring Part-Time	54%	54%	57%	
3g.	Spring Part-Time who are Full-Time in System	7%	7%	9%	
4.	SSH Program Majors in Program Classes	274	295	345	
5.	SSH Non-Majors in Program Classes	238	156	168	
6.	SSH in All Program Classes	512	451	513	
7.	FTE Enrollment in Program Classes	17	15	17	
8.	Total Number of Classes Taught	16	19	19	

NOTE: New & Replacement jobs updated (View Methodology).

	Efficiency Indicators	2016 - 17	2017 - 18	2018 - 19	Efficiency Health
9.	Average Class Size	11	8	9	Cautionary
*10.	Fill Rate	50%	43.9%	47%	
11.	FTE BOR Appointed Faculty	1	1	1	
*12.	Majors to FTE BOR Appointed Faculty	39	49	55	
13.	Majors to Analytic FTE Faculty	39	49	55	
13a.	Analytic FTE Faculty	2	2	2	
14.	Overall Program Budget Allocation	$86,915	$127,984	$0	
14a.	General Funded Budget Allocation	$86,915	$127,984	$0	
14b.	Special/Federal Budget Allocation	$0	$0	$0	
14c.	Tuition and Fees	$0	$0	$0	
15.	Cost per SSH	$158	$0	$0	
16.	Number of Low-Enrolled (<10) Classes	9	14	11	

	Effectiveness Indicators	2016 - 17	2017 - 18	2018 - 19	Effectiveness Health
17.	Successful Completion (Equivalent C or Higher)	82%	82%	80%	Healthy
18.	Withdrawals (Grade = W)	8	5	8	
*19.	Persistence Fall to Spring	91%	76%	81%	
19a.	Persistence Fall to Fall	64%	68%	56%	
*20.	Unduplicated Degrees/Certificates Awarded	8	5	7	
20a.	Degrees Awarded	8	5	7	
20b.	Certificates of Achievement Awarded	0	0	0	
20c.	Advanced Professional Certificates Awarded	0	0	0	
20d.	Other Certificates Awarded	0	0	0	
21.	External Licensing Exams Passed	0	0	0	
22.	Transfers to UH 4-yr	15	24	7	
22a.	Transfers with credential from program	8	7	4	
22b.	Transfers without credential from program	7	17	3	