



The University of Vermont
FACULTY SENATE

**Curricular Affairs Committee of the Faculty Senate
Minutes**

Thursday, November 2, 2017, 4:15 – 6:15 pm

Present: Professors Almstead, Cepeda-Benito, Dale, Everse, Garrison, Goodwin, Hughes, Ivakhiv, Kasser, Kervick, Nichols, Rosebush, Rowe*, Sisk, Strickler, Tomas, Wojewoda*, SGA Representative McHugh, GSS Representative Marcotte

Absent: Professors Dickinson, Hazelrigg, Marshall, Monsen, Ultsch

Guests: Cathy Paris, Brian Reed, Veronika Carter, Cindy Forehand, Beth Taylor-Nolan

Chair Almstead called the meeting to order at 4:17 pm in 427A Waterman.

- I. **Approval of the Minutes.** Amy Tomas moved to accept the minutes of the October 5, 2017 meeting as written. The motion was seconded and carried, with three abstaining.

II. **Chairperson's Remarks**

Laura Almstead made the following remarks:

- Welcome Antonio Cepeda-Benito, newly elected CAC representative from the College of Arts & Sciences.
- The CAC report to the October meeting of the Board of Trustees was well received.
- The agenda for the December CAC meeting is anticipated to be very full. The December CAC meeting is the final meeting for proposals to come to vote in order to make the deadline for inclusion in the Fall catalog.
- Thank you to the subcommittees for their efficient work, enabling them to present the proposals for consideration today.

III. **Reports:**

- A. **Integrative Health Care Certificates (Undergraduate, CDE), CNHS.** Stephen Everse and Ellen Rowe have reviewed and recommend approval of the proposals for two new certificates in Integrative Healthcare submitted by: 1) the Department of Rehabilitation and Movement Science in CNHS for creation of an Undergraduate Certificate with an anticipated start date of Spring 2018 with Karen Westervelt as the Educational Director and Cara Feldman-Hunt as the Administrative Director, and 2) Continuing and Distance Education (CDE) for the creation of an Academic Certificate with an anticipated start date of Spring 2018.

These two certificate proposals were generated in response to concerns raised about a previous proposal reviewed last Spring for a minor in Integrative Healthcare. In response, the proposers made major revisions, and have generated two certificate proposals which fully addressed these concerns. These certificate programs will provide a broad-based education in the theoretical and experiential underpinnings of Integrative Healthcare, including scientific and philosophical models, treatment modalities, and the policies affecting implementation. Students (UVM, professionals, and community members) will learn policies and practices that promote incorporating integrative healthcare into clinical practice.

Motion: Laura Almstead called a vote to approve the proposed two new Integrative Healthcare certificate programs (Undergraduate, CDE) in the College of Nursing and Health Sciences.

Vote: 17 Approve, 0 Oppose, 1 Abstain

B. MS in Biomedical Engineering, CEMS/Graduate College. Ann Hazelrigg and Jeffrey Hughes reviewed and recommend approval of a proposal for a new Master of Science in Biomedical Engineering submitted by the College of Engineering and Mathematical Sciences (CEMS) in conjunction with the Graduate College. There is strong support for this program in both CEMS and the Larner College of Medicine and justified need. The M.S. degree fills a present void between an established Ph.D. program in Bioengineering and a newly introduced BS program in Biomedical Engineering. The proposed new program aligns with the current mission of UVM in a way that increases STEM education across campus. An accelerate pathway is available for UVM students enrolled in the BS in Biomedical Engineering, and therefore may help retain UVM students interested in pursuing post-baccalaureate studies in the field, but are not interested in a PhD program.

Motion: Laura Almstead called a vote to approve the proposed new Master of Science in Biomedical Engineering submitted by the College of Engineering and Mathematical Sciences.

Vote: 20 Approve, 0 Oppose, 1 Abstain

IV. Other Business

A. MS in NR Leadership for Sustainability concentration to MPS degree, RSEN/Graduate College. The Graduate College, in conjunction with the Rubenstein School for the Environment and Natural Resources (RSEN) and Continuing and Distance Education, requests that the Leadership for Sustainability Concentration of the MS in Natural Resources become a separate Master of Professional Studies (MPS) in Leadership for Sustainability. The MPS is a type of Master's degree concentrated in an applied field of study. The Leadership for Sustainability Concentration is an online/minimum residency curriculum with a culminating project. The Leadership for Sustainability has an applied focus, and is project-based rather than thesis based. Therefore, it is better suited to be a MPS degree. There will be no change in the curriculum. The requested change must go through the full approval process (votes by the CAC,

Faculty Senate, and Board of Trustees) because it is creating a new degree program. Although the MPS is a relatively common degree nationally, if approved, the MPS in Leadership for Sustainability will be the first MPS at UVM.

Motion: Stephen Everse moved to approve the request that the Leadership for Sustainability Concentration of the MS in Natural Resources become a separate Master of Professional Studies (MPS) in Leadership for Sustainability. The motion was seconded and carried.

Vote: 19 Approve, 0 Oppose, 0 Abstain

V. APR Reports:

A. Rubenstein School of Environment and Natural Resources. Amy Tomas, Colby Kervick, Jennifer Sick, and Jackie Weinstock acted as the review subcommittee, and their report is attached to these minutes. The subcommittee reviewed the self-study report submitted by RSENR, the external reviewers' report and RSENR's response to the reviewers' report, and strongly recommends approval of the RSENR undergraduate and graduate programs reviewed through the current APR. The subcommittee appreciates the careful preparation and consideration which has been given to this process by the members of RSENR. The external reviewers were highly favorable in their summary of the program strengths, noting the high quality of RSENR personnel and students, along with their dedication to the school's mission. They found the integrated program structure, core curriculum, and service-learning courses to be unique among current offerings in the field. They agreed with the unit's assessment that it is indeed a "special place", noting the school ranks highly in terms of student satisfaction, learning, employment and motivation. The subcommittee concurs with the reviewers' positive assessment of the RSENR programs and appreciates the careful consideration which has been given to their recommendations.

Motion: Stephen Everse moved to accept the subcommittee's report on the APR of Rubenstein School of Environment and Natural Resources.

Vote: 20 Approve, 0 Oppose, 1 Abstain

VI. New Business

- A. Subcommittee needed for a proposal for a **new BA and new minor in Health and Society (CAS)**. Rosemary Dale will chair, and Rosie Rosebush will second for the review of this combined package.
- B. Subcommittee needed for a proposal for a **new MS in Engineering Management (CEMS)**. Jeff Marshall will chair, and Aaron Nichols will second.
- C. Subcommittee needed for a proposal for a **new PhD in Complex Systems and Data Science**. J. Dickinson will chair, and Sue Kasser will second.

VII. Adjournment. Ellen Rowe moved to adjourn at 5:36 p.m. The motion was seconded and carried.

*via phone

MEMO

To: Curricular Affairs Committee of the Faculty Senate
From: Stephen Everse (Chair) and Ellen Rowe
Date: October 28, 2017
Re: Approval of a Proposal for TWO New Certificates in Integrative Healthcare

We have reviewed the proposals for TWO new certificates in Integrative Healthcare submitted by:

1. The Department of Rehabilitation and Movement Science in CNHS for creation of an Undergraduate Certificate with an anticipated start date of Spring 2018 with Karen Westervelt as the Educational Director and Cara Feldman-Hunt as the Administrative Director.
2. Continuing and Distance Education (CDE) for the creation of an Academic Certificate with an anticipated start date of Spring 2018 with Karen Westervelt as the Educational Director and Cara Feldman-Hunt as the Administrative Director.

We wholeheartedly recommend approval of both certificates.

In the report that follows, italicized text represents text directly taken from the proposal or accompanying materials.

Program Description and Rationale

The purpose of these certificates *is to prepare and inform undergraduate and CDE students about the methods, evidence base, and philosophical underpinnings of integrative health and medicine. Students will learn about the use of integrative health and medicine in health promotion and prevention and how it can enhance the patient experience, improve population health, reducing costs, and reduce health care workforce burnout.* The goals of the certificates are to:

1. *Educate students about this model of health care;*
2. *Enable students to identify what further training they may need to become health care providers who can be responsive to patient choices and needs, balancing traditional methods of care and those that are considered complementary approaches;*
3. *Enable students to experience a variety of alternative and complementary health care modalities and to personally experience how this could be integrated into a health and wellness plan.*

A consumer-led movement for greater access to natural medicine and complementary and alternative health care approaches (e.g., acupuncture and oriental medicine, therapeutic massage, etc.) gained significant attention from mainstream medicine following the publication of David Eisenberg's research on "Unconventional medicine in the United States. Prevalence, costs, and patterns of use" in The New England Journal of Medicine" (Eisenberg et al., 1993). Since that time, there has been great growth and maturation in research, education and clinical practice in this field. These certificates will support both the Universities vision "to be among the nation's premier small research universities, preeminent in our comprehensive commitment to liberal education, environment, health, and public service" (UVM, n.d.) and CNHS goal of "meeting our society's need for well-prepared interdisciplinary health care professionals who are ready to join the workforce and to bring value to the work of other team members, ultimately improving patients' and clients' outcomes" (CNHS, 2014).

These proposals are a direct result of our (CAC) discussion of an undergraduate minor proposal last Spring and our suggestion to consider generating a new proposal for a certificate in coordination with CDE. Upon generating such a proposal, the Registrar's Office requested that it be split into two proposals since different units are sponsoring them for tracking purposes. The proposals are identical except for the sponsoring unit.

Justification and Evidence for Demand

The proposed Certificate in Integrative Healthcare is part of a larger effort designed to strengthen the University in its vision "to be among the nation's premier small research universities, preeminent in our comprehensive commitment to liberal education, environment, health, and public service" (UVM, n.d.) Specifically, over the past 15+ months representatives of UVM's College of Nursing and Health Sciences, the Larner College of Medicine, and the UVM Medical Center have met to design a comprehensive program in the field of integrative medicine and health. This effort will have curricular, clinical, research and outreach components. The proposed Certificates would be one of the curricular offerings that can reach students and health professionals that have interest in integrative health and/or are seeking to complement their credentials.

A central feature of integrative healthcare delivery is that it is collaborative, team-based, and patient-centered. The siloed nature of education in the health professions is, sadly, an impediment to effective cross-disciplinary teamwork on behalf of patients and their families. Yet the CNHS is committed to preparing highly qualified and competent practitioners, ready to practice in inter-professional settings. The certificate will serve both an undergraduate and CDE student audience, enhancing cross-disciplinary team work approach within the courses. Thus, this certificate helps CNHS meet its mission to "prepare graduates to lead and collaborate with stakeholders across disciplines to foster exemplary inter-professional, compassionate and family-centered services to create and use new knowledge and to contribute to the health and wellness of individuals, communities, and society." (CNHS Mission 2016-2020)

Integrative medicine and health is a vital and growing field and through the inter-professional collaboration of UVM Medical Center, Larner College of Medicine (LCOM) and CNHS. We (CNHS) intend for UVM to be a leader in this arena. We have faculty who have completed the two-year 1000-hour fellowship in integrative medicine as well as UVM faculty conducting research in the field of integrative health have been supported by the NIH National Center for Complementary and Integrative Health (NCCIH), National Cancer Institute (NCI), and National Institute of Mental Health (NIMH). Additionally, several of the program faculty serve on national committees regarding integrative healthcare.

Relationship to Existing Programs

The proposers note that there are no other certificates offered at UVM that are similar in content or have an overlap in focus. Diet, exercise, and access to a healthy environment, including but not limited to healthy food, air and water, are essential to human health and well-being. This means that a number of departments offer courses that will be appropriate electives for students in the Integrative Healthcare Certificate.

The Behavioral Change Health Studies Minor in the Larner College of Medicine is most similar program. The certificate in Integrative Healthcare includes concepts related to behavior change, but does not focus on them and instead emphasizes the value of key integrative health modalities from personal, clinical, and population health perspectives and opportunities for integrative learning. The Behavioral Change Health Studies minor focuses on this issue with emphasis on the neuroscience of behavior change. Jim Hudziak, Director of the Behavior Change Minor, writes in support of the Integrative Healthcare Certificate and indicates negligible overlap.

Curriculum

A total of 15 credits is required for this Certificate. Nine credit hours are required and 6 credit hours of experiential learning electives. Students may take no more than three one-credit courses to assure that a broad general knowledge of Integrated Healthcare is achieved.

Required Courses

Number	Name	Credits
HLTH 101	Introduction to Integrative Health	3
HLTH 102	Science & Evidence in Complementary and Alternative Therapies	3
ENVS 107 (crosslisted as HLTH 107)	Human Health & the Environment	3

Electives (6 credits from at least two of the BOLD areas)

Number	Name	Credits
MINDFULNESS		
CSD 287	Mindfulness & Helping Skills	3
HLTH 137	Mindful Eating	3
BEHAVIOR CHANGE		
COMU 001	Healthy Brains, Healthy Bodies	
COMU 022	The Science of Happiness	
IHC TRAVEL COURSES		
HLTH 106	Bali: Consciousness, Culture, and Communication	3
HLTH 145	Women's Health & Spirituality	3
HLTH 195	Mongolia: Traditional Mongolian Medicine and Cultural Immersion	2
HLTH 295	Cuba: CAM Therapies in Cuban Health Care	3
RMS 296	Exploring Therapeutic Effects of Icelandic Thermal Springs	3
YOGA		
PEAC 052	Yoga and Mindfulness	1
PEAC 103	Yoga and Ayurveda	1
PEAC 109	Yoga Asana & Philosophy	1
PEAC 115	Yoga and the Chakras	1
ENERGY THERAPIES		
HLTH 109	Energy Medicine	3
HLTH 141	Healing Touch Level I	1
HLTH 142	Healing Touch Level II	1
HLTH 143	Healing Touch Level III	1
HLTH 144	Healing Touch Level IV	3
HLTH 146	Healing Touch Level V ¹	3
HLTH 160	Meridians, Systems & Organs	3
INTEGRATIVE NUTRITION & HERBALISM		
ENVS 195	Plant Based Healing Medicine	3

¹ Lower level named Healing Touch courses serve as pre-requisites for higher courses.

ENVS 195	Therapeutic Herbalism	3
HLTH 195	Integrative Nutrition	3

Note: There are no pre-requisites for the certificate but individual courses may have pre-requisites.

Admission Requirements and Process

The certificate program will be open to all students who meet the criteria to be CDE or UVM students, a GPA of 2.0, and an interest in Integrative Healthcare as expressed in a brief narrative submitted for evaluation.

Anticipated Enrollment and Impact on Current Programs

The proposers anticipate a cohort of ~15 students annually.

Advising

CDE:

CDE will advise and support student knowledge of this academic option. CDE students will be advised by CDE advisors who will work with the Integrative Healthcare Educational Director to assist with curricular decisions. Upon acceptance into the program, student curricular questions that cannot be addressed by the primary advisor will be directed to the Integrative Healthcare Educational Director.

Undergraduate:

The CNHS Office of Student Services and CDE will advise and support student knowledge of this academic option. Undergraduate students will be advised by the primary advisor based on academic major and will work with the Integrative Healthcare Educational Director to assist with curricular decisions. CDE students will be advised by CDE advisors who will work with the Integrative Healthcare Educational Director to assist with curricular decision. Upon acceptance into the program, student curricular questions that cannot be addressed by the primary advisor will be directed to the Integrative Healthcare Educational Director.

Assessment Plan

A. What criteria for evaluation will be applied?

The normal academic program review process under the UVM Faculty Senate Committee on Curricular Affairs would apply. In addition, all current CNHS program evaluation tools (see below) would be implemented. The Integrative Healthcare Certificate will be evaluated using evidence of enrollment, retention and certificate completion. Individual courses will be additionally evaluated through student evaluations, peer evaluations and Integrative Health Education Committee discussion.

Department and CNHS evaluation tools include:

- *Course and instructor evaluations*
- *Advising surveys*
- *Student exit surveys*
- *Survey of graduates*
- *Survey of community service-learning partners*
- *Research papers, publications*

B. How and by whom will the program be evaluated?

Course offerings that may relate to content in the Integrative Healthcare Certificate will be examined by the Integrative Health Education Committee to ensure that the courses developed have sufficient

substance and cover relevant and best practice.

The Integrative Healthcare Education Committee will ensure course content is in accordance with the Academic Consortium for Integrative Medicine & Health (<http://www.imconsortium.org/>).

A process for routing and approval of such courses has been agreed upon and already has begun. Program evaluations will be the responsibility of the Educational Program Director and Curriculum Committee, and will use existing UVM processes and the outcome criteria listed above.

Staffing Plan, Resource Requirements, and Budget

No new faculty appointments are necessary to support this program, although as the program grows, there may be an opportunity to hire additional faculty. The Libraries have already purchased supporting materials necessary for the two required courses (HLTH 101 and 102).

Evidence of Support

Positive letters of support were provided from:

- Cynthia Belliveau, Dean Continuing and Distance Learning
- Mike Cannizzaro, Chair Department of Communication Sciences and Disorders
- Rosemary Dale, Chair Department of Nursing
- James Hudziak, Professor, Departments of Psychiatry, Medicine & Pediatrics and Communication Sciences (Director of the Behavior Change Minor)
- Nancy Matthews, Dean, Rubenstein School
- Patricia Prelock, Dean College of Nursing and Health Sciences
- Jeremy Sibold, Chair Department of Rehabilitation & Movement Science
- Shelly Velleman, Chair Department of Communication Sciences and Disorders

Summary

We reviewed a version of this proposal as a minor last Spring and a number of concerns were raised by the committee and feedback given to the proposers. In response, the proposers made major revisions and have generated two certificate proposals which fully addressed these concerns. Therefore, we present for your approval a two Certificates in Integrative Healthcare. These certificate programs will provide *a broad-based education in the theoretical and experiential underpinnings of Integrative Healthcare, including scientific and philosophical models, treatment modalities, and the policies affecting implementation. Students (UVM, professionals, and community members) will learn policies and practices that promote incorporating integrative healthcare into clinical practice.*

Curricular Affairs Committee of the Faculty Senate

MEMO

To: Curricular Affairs Committee of the Faculty Senate

From: Ann Hazelrigg and Jeffrey Hughes

Date: October 16, 2017

Re: Approval of a proposal for a Master of Science in Biomedical Engineering submitted by the College of Engineering and Mathematical Sciences (CEMS).

We have reviewed a proposal for a new Master of Science in Biomedical Engineering submitted by the College of Engineering and Mathematical Sciences (CEMS) and recommend Approval. The Program Directors will be Jeff Frolik Ph.D., Department of Electrical and Biomedical Engineering, College of Engineering and Mathematical Sciences and Jason Bates Ph.D., Department of Medicine, Larner College of Medicine. The start date is Fall 2018.

Program Description and Rationale

The proposed new graduate program will grant a Master of Science (M.S.) degree in Biomedical Engineering (BME). The Program will be administered through the College of Engineering & Mathematical Sciences with strong involvement of the Larner College of Medicine. The MSBME degree will be available in three options: a research-based thesis option, a project-based option, and course-work only professional degree option. Each option will require a total of 30 credit hours of course and/or research credits. Graduates of the program will have received advanced training in the areas of biomedical engineering. There will be an Accelerated Master's Program for UVM undergraduates majoring in Biomedical Engineering, Civil Engineering, Electrical Engineering, Environmental Engineering, or Mechanical Engineering. The proposed new program aligns with the current mission of UVM in a way that increases STEM education across campus. The M.S. degree fills a present void between an established Ph.D. program in Bioengineering and a newly introduced B.S. program in Biomedical Engineering. The M.S. program would share and bolster enrollments in the courses that support these existing degree programs. The general goal of the degree is to develop in students a solid foundation in the quantitative methods of engineering and to provide opportunities to apply them to biomedical problems.

Justification and Evidence for Demand

Biomedical engineering is presently a major growth area in the US in part to support an aging population and a demand for improved medical devices and systems. Students pursuing the MSBME degree from UVM will be able to focus on advance studies and research related to biomedical engineering. Graduates who pursue studies related to biomedical engineering can make contributions to growth areas such as computer-assisted surgery, cellular and tissue engineering, rehabilitation, and orthopedic engineering. Nationwide graduation rates at the M.S. level in Biomedical or Biological Engineering have seen a significant growth over the recent years (36.9%), comparable or higher than other well established degree programs indicating there is growing interest for students to receive advance education in this area.

The UVM MSBME Degree Program will primarily involve participation from the College of Engineering and Mathematical Sciences (CEMS) and the Larner College of Medicine (LCOM). The proximity of the UVM's engineering programs to the UVM medical school along with existing research collaborations provides the opportunity to develop a unique and high quality Master of Science degree program. The two units have already collaborated to introduce a Ph.D. in Bioengineering program (2011) and a B.S. in Biomedical Engineering (2016) and fills the void between the newly introduced BSBME degree and the existing Ph.D. Bioengineering degree. The proposed M.S. program will leverage courses already developed and taught by Engineering, Computer Science, and Mathematics and LCOM that support the two existing degree programs. These courses will be taught by engineering faculty who conduct biomedical research, faculty from across LCOM (with backgrounds in quantitative disciplines such as engineering, biophysics and mathematics), and other UVM faculty with expertise related biomechanics, biomaterials, medical instrumentation and imaging, molecular biology, synthetic biology, etc. These faculty will also participate by advising students who choose to pursue the research-oriented thesis option. In

comparison to current M.S. degrees in electrical, mechanical or civil/environmental engineering, the MSBME will have greater flexibility to take courses outside of the engineering that pertain to student's interest in biomedicine, biotechnology, physiology, etc.

Relationship to Existing Programs

The M.S. degree complements an existing Ph.D. program in Biomedical engineering and a newly introduced undergraduate program in Biomedical Engineering. The degree leverages strong ties between UVM's Engineering departments and the Larner College of Medicine and fills the void between the newly introduced BSBME degree and the existing PhD Bioengineering degree. This new degree will leverage the existing courses in place to support these two degrees. These courses can be found in all departments in the CEMS and the LCOM through departments including Molecular Physiology & Biophysics, Biochemistry, Neurological Sciences, Pathology, and Medicine, and in the College of Nursing and Health Sciences (CNHS). It is expected that the MSBME students will primarily take courses from biomedical engineering, electrical engineering (e.g., if they are interested in medical instrumentation), and/or mechanical engineering (e.g., if they are interested in biomechanics). In comparison to current M.S. degrees in electrical, mechanical or civil/environmental engineering, the MSBME will have greater flexibility to take courses outside of the engineering that pertain to student's interest in biomedicine, biotechnology, physiology, etc.

It should be noted that prior to AY 2012-2013, UVM did have a MSBME program that was offered through the School of Engineering and, prior to that, cooperatively through the Department of Mechanical Engineering and the Department of Electrical and Computer Engineering. However, in 2012 this degree was eliminated as part of the conditions of implementing the new Ph.D. in Bio engineering program. A M.S. in Bioengineering degree exists presently but only as an exit degree for students who do not complete the Ph.D. program, but have met conditions appropriate for the Master's degree. The proposed new MSBME degree differs from the Bioengineering offerings by providing a more distinct focus on engineering methods and their application to address problems related to human health. Unlike the Bioengineering degree program, the proposed MSBME degree will require that the majority of coursework be from the engineering disciplines (CEE, BME, EE, or ME). In contrast to the existing M.S. degrees from Engineering, the proposed program will provide more flexibility for students and will leverage new technical elective courses that are being developed to support the undergraduate biomedical engineering curriculum (BME designation). Furthermore, in support of the undergraduate degree, new faculty with dedicated interests in biomedical engineering are being hired. This cohort will provide the core faculty to the new M.S. students and the M.S. students will serve to support their research endeavors.

Curriculum

The proposed MS Biomedical Engineering degree will have three options:

- **Coursework only:** 30 credit hours required. At least 18 credit-hours will come from CEE, EE, BME, ME, and/or ENGR graduate courses. At least 9 credits will have BME designation and at least 6 credits will be at the 3XX level. Final presentation serves as the comprehensive exam.
- **Project-based option:** 27 credit-hours of coursework + 3 credits of project required. At least 18 credit hours will come from CEE, EE, BME, ME, and/or ENGR graduate courses. At least 9 credits will have BME designation and at least 6 credits will be at the 3XX level. Three credit hours of project conducted with BME associated faculty is required. Final presentation serves as the comprehensive exam.
- **Research-based, thesis option:** 24 credit-hours of coursework + 6 credits of research. At least 15 credit hours will come from CEE, EE, BME, ME, and/or ENGR graduate courses. At least 6 credits will have BME designation and at least 6 credits will be at the 3XX level. 6 credit-hours of research conducted with BME associated faculty is required. Research proposal presentation serves as the comprehensive exam.

Additionally, the degree will have an Accelerated Master's Program (AMP) pathway. Students will take 30 credit-hours in total, 6 credits of which may overlap with undergraduate credits. AMP students may only come from undergraduate programs offered through CEMS. Students must apply in their junior year and have a minimum 3.2 GPA. AMP students may pursue any of the three degree options.

Required Courses-(see above) none specifically specified but several options are available for the student in CEE, EE, BME, ME, and/or ENGR graduate courses. See CEMS documentation for listing of possible courses.

Admission Requirements and Process

Students entering the MSBME program should have a degree in an appropriate field of study and should have demonstrated academic performance as measured by grades and satisfactory scores on the Graduate Record Examination General (Aptitude) section, as well as on the TOEFL or IELTS for non-native English speakers. Students will be selected for admission to this degree program using the same process as currently used in the PhD in Bioengineering. Applicants must submit a full application to the Graduate College that will be reviewed by the Bio/biomedical Engineering admission committee. Students must meet the GPA, GRE, TOEFL, etc. scores consistent with the expectations of the Graduate College and other Engineering graduate programs. An undergraduate degree in engineering is preferred and coursework in computational science and/or the life sciences is desirable. Specific remedial coursework may be required of those who lack a sufficiently strong background in certain areas. Students entering the coursework MSBME program under the Accelerated Master's Program (AMP) will have the GRE requirement waived.

Anticipated Enrollment and Impact on Current Programs

It is envisioned that the 5-10 new MSBME students per year will impact Programs across campus due to the flexibility in the coursework that the students would take. These programs include those in Engineering, Mathematics, Chemistry, Physics, Medical Laboratory and Radiation Science, Computer Science, Statistics, etc. The expectation is that, under IBB, increased student credit hours will result in increased College allocations to the impacted Programs.

Advising and Assessment Plan

Students pursuing the coursework version MSBME degree will present a plan of study to the Bio/biomedical Engineering graduate studies committee for approval. These students will be assigned to the Faculty Graduate Program Coordinator as a primary academic advisor to ensure the plan is followed or facilitate approvals for any changes. Students pursuing a project-based or thesis-based MSBME degree will have a primary research advisor who will approve course selection and advise research. These students will have project or thesis committees who will participate in advising the student as is the norm for the other Engineering MS degrees. For retention, students must make satisfactory progress on their research (if a thesis-based degree) and must maintain a minimum GPA of 3.0.

The MSBME Curriculum Committee will assess the program annually through feedback from students (course evaluations, additional surveys), enrollment numbers, graduation rates, and level of success in placement post- graduation. In addition, data on journal and conference publications involving students pursuing the thesis-based program will be collected. These data will be compiled and included in an annual report that evaluates both this program and the undergraduate BSBME program. This annual report is already to be developed as part of ABET assessment for UVM's undergraduate engineering programs.

Staffing Plan, Resource Requirements, and Budget

The clerical and logistical issues associated with this degree program will be handled by the staff of the Department of Electrical and Biomedical Engineering. This administrative assistant will coordinate the graduate applications for the proposed MSBME degree and the existing Ph.D. BioEngineering degree. Support will also be available from the CEMS-wide graduate coordinator. The program will be initially co-coordinated by Dr. Jason Bates, Ph.D. (LCOM), who is presently serving as the graduate coordinator for the Ph.D. Bioengineering degree, and Dr. Jeff Frolik, Interim Chair of the Department of Electrical and Biomedical Engineering. In the future, a new Director may be hired. The faculty who will teach the courses that support this degree will be primarily from the Engineering Departments and LCOM. The department expects the MSBME program to attract new students to UVM's existing graduate level courses. Many of the courses that the MSBME students will take are already being offered to support the Ph.D. in Bioengineering program or will be newly offered to support seniors in the BS in Biomedical Engineering program. The department expects that the students pursuing this degree will serve only to bolster existing class enrollments and not over burden the offerings.

The College of Engineering and Mathematical Sciences recently hired two tenure track faculty in the area of biomedical engineering who will start in Fall 2017 and will offer 2XX courses that will support the proposed MSBME degree. These faculty hires will not only support the proposed degree with courses but also provide mentorship for students pursuing either the project-based or thesis-based options. In the future, additional tenure-track hires may be sought, commensurate with the growth of the B.S. and M.S. Biomedical Engineering and Ph.D. Bioengineering programs. Calculations provided by the Graduate College showed due to the low overhead of bringing on this program, the MSBME is expected to return positive revenue in its second year and to be sustainable from the point forward.

Evidence of Support

The faculty of the College of Engineering and Mathematical Sciences voted unanimously on January 17, 2017 in support of this proposal. Positive endorsements were attached from the leadership of the CEMS including: Jeff Buzas, Prof. and Chair of the Dept. of Mathematics and Statistics; Mandar Dewoolkar, Assoc. Prof. and interim Chair of the Dept. of Civil and Environmental Engineering; Yves Dubief, Assoc. Prof. and interim Chair of the Dept. of Mechanical Engineering; Margaret Eppstein, Prof. and Chair of the Dept. of Computer Sciences and Jeff Frolik, Prof. interim Chair of the Dept. of Electrical and Biomedical Engineering. The proposal was sent to LCOM faculty in Spring 2017 and was approved by the Dean's Office on May 2, 2017. Letters of support for the creation of the MSBME degree were received from Luis Garcia, Dean, College of Engineering and Mathematical Sciences, Frederick Morin, Dean, Larner College of Medicine, Christopher Berger, Dir. Of Graduate and Post-doctoral training, LCOM and Gordon Jensen, Senior Assoc. Dean for Research, LCOM.

Summary

There is strong support for this program in both CEMS and the LCOM and justified need. The M.S. degree fills a present void between an established Ph.D. program in Bioengineering and a newly introduced BS program in Biomedical Engineering. The proposed new program aligns with the current mission of UVM in a way that increases STEM education across campus.



The University of Vermont

GRADUATE COLLEGE OFFICE OF THE DEAN

September 22, 2017

David Rosowsky, Ph.D., P.E., F.ASCE
Provost and Senior Vice President
University of Vermont
Burlington, VT 05405-0160

Re: Request to change the Leadership for Sustainability (online/minimum residency) Concentration of the MS in Natural Resources to a separate Master of Professional Studies (MPS) in Leadership for Sustainability in the Rubenstein School of Environment and Natural Resources.

Dear Provost Rosowsky,

The Graduate College, in conjunction with the Rubenstein School for the Environment and Natural Resources (RSENR) and Continuing and Distance Education, requests that the Leadership for Sustainability Concentration of the MS in Natural Resources become a separate Master of Professional Studies (MPS) in Leadership for Sustainability. The MPS is a type of Master's degree concentrated in an applied field of study. A succinct description of the MPS and its rising importance in graduate education is provided in an [article](#) by Georgetown University School of Continuing Education.

The Leadership for Sustainability Concentration is an online/minimum residency curriculum with a culminating project. This concentration is designed for emerging leaders who are rooted in their home organization/community and are committed to deepening their capacity to catalyze change and collaborate within and beyond their chosen professional field. The curriculum explores leadership practices inspired by the wisdom of nature and grounded in a critical inquiry of the mindsets, assumptions, and patterns of power and privilege that underlie change-making efforts. The program, initiated in 2015, has had remarkable success in recruiting a diverse group of students and has recently been recognized in an article in *Insight into Diversity* entitled [Changing the Face of Climate Change](#). The professional focus of the program fits more appropriately with the MPS degree than a traditional research-based Master's degree.

As noted in the request from the RSENR, MPS degrees are often interdisciplinary and are designed for current or aspiring professionals with an emphasis on professional skill, a description that perfectly describes the Leadership for Sustainability curriculum. MPS degrees often require some kind of applied capstone course/project. The UVM degree currently has culminating project, but there is a plan to potentially replace the culminating project with a capstone course in the future. That change is not formally part of the change to the MPS degree so there is no curricular change accompanying this request. The request to change the Leadership for Sustainability from a concentration within the MS in Natural Resources to an MPS in Leadership for Sustainability is supported by RSENR Dean Mathews and was unanimously approved by the RSENR Curriculum Committee and the faculty. The requested change is also supported by CDE Dean Belliveau.

I and the Graduate Executive Committee enthusiastically endorse this proposal, which would create UVM's first MPS degree. I ask that you please forward this program on to the Faculty Senate for review.

Sincerely,


Cynthia J. Forehand, PhD
Dean



RUBENSTEIN SCHOOL
OF ENVIRONMENT AND NATURAL RESOURCES
DEAN'S OFFICE

MEMORANDUM

TO: Cindy Forehand, Dean

FROM: Nancy E. Mathews, Dean 

SUBJECT: Masters of Professional Studies Degree & Leadership for Sustainability Concentration

DATE: May 11, 2017

This memo reaffirms my support for the establishment of a Masters of Professional Studies degree that will become new degree program in the Rubenstein School of Environment and Natural Resources (RSENR) replacing our M.S. in Natural Resources concentration in Leadership for Sustainability.

The motion below was brought forward to the faculty by the Graduate Standards Committee as a seconded motion for a full faculty vote on April 4, 2017. The faculty voted unanimously in favor of this motion. During that meeting, it was suggested that the motion should also be formally approved by the RSENR Curriculum Committee. As a result, the Curriculum Committee met just prior to our May 2nd, 2017 faculty meeting and reconfirmed their support for the motion as stated below.

The purpose of this proposal is a motion to endorse the MPS degree concept described above. This concept would be further operationalized in partnership with the Graduate College (with all specific changes for the curriculum brought forward through the RSENR curriculum committee and graduate standards committee).

In 2015, the Graduate Executive Committee approved our Appendix B proposal for a new "Professional Master's Degree Concentration in Natural Resources, titled "***Leadership for Sustainability***." This resulted in the Leadership for Sustainability concentration being placed under the pre-existing M.S. degree in Natural Resources. Now, in its second year, we are proposing a formal degree change that would differentiate the professionally oriented Leadership for Sustainability concentration from the research-based M.S. degree.

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MOTION to establish a new degree, Masters of Professional Studies in Leadership for Sustainability in the Rubenstein School of Environment and Natural Resources.

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Forehand, Cynthia J

From: Cynthia Belliveau <Cynthia.Belliveau@uvm.edu>
Sent: Thursday, September 21, 2017 10:06 AM
To: Forehand, Cynthia J
Subject: RE: MPS for the MSLS

Continuing and Distance Education is in agreement that this degree change should happen. We look forward to future collaboration.

Best,
Cynthia

-----Original Message-----

From: Forehand, Cynthia J [mailto:cynthia.forehand@med.uvm.edu]
Sent: Thursday, September 21, 2017 10:01 AM
To: Cynthia Belliveau <Cynthia.Belliveau@uvm.edu>
Subject: FW: MPS for the MSLS

Cynthia J. Forehand, Ph.D.

Professor, Neurological Sciences

Dean, Graduate College

University of Vermont

From: Forehand, Cynthia J
Sent: Thursday, September 21, 2017 9:43 AM
To: Forehand, Cynthia J
Subject: MPS for the MSLS

Hi Cynthia,

As we discussed briefly at our last meeting, RSENR has asked to transition the MS concentration in Leadership for Sustainability (MSLS) to a separate Master of Professional Studies (MPS) degree. The memo of their request is attached. Because this is a hybrid program with substantial online components, I would like to have a memo from you endorsing the change. As you know, the MPS is a relatively new degree that has gained traction as a way to describe professionally focused education that lives outside specific disciplines. The current MSLS fits that description very well.

Thank you, Cindy

Cynthia Forehand, PhD
Professor of Neurological Sciences
Dean, Graduate College
330 Waterman Bldg.
University of Vermont
cynthia.forehand@uvm.edu

**Faculty Senate Curricular Affairs Committee
Academic Program Review Subcommittee Report
Rubenstein School of Environment and Natural Resources
October 5, 2017**

Academic Program Review Subcommittee: Colby Kervick, Jennifer Sisk, Amy Tomas (Chair), Jackie Weinstock

External Reviewers: James Burchfield, Ph.D., University of Montana (Team Leader), Kathleen Halvorsen, Ph.D., Michigan Tech, Karla Henderson, Ph.D., NC State University, Michael Jones, Ph.D., Michigan State University

The external review team visited the University of Vermont's Rubenstein School of Environment and Natural Resources (RSENR) for a 2-day review on September 14 and 15, 2016 as part of the school's Academic Program Review (APR). This report summarizes the strengths and weakness of the program identified through the review process, provides a synopsis of the external reviewers' recommendations *and responses from the program*, and offers the APR internal review subcommittee's conclusions. This APR considered 3 undergraduate programs (Natural Resources, Parks, Recreation and Tourism, and Wildlife Fisheries and Biology) and the graduate program.

Overview of Rubenstein School of Environment and Natural Resources (RSENR)

RSENR is comprised of 6 undergraduate programs and the graduate program. (Environmental Studies, Environmental Science and Forestry programs are not included in the current APR.) The programs considered here offer 3 majors, 3 minors, and 2 graduate degrees.

Majors: Natural Resources; Parks, Recreation and Tourism; Wildlife and Fisheries Biology

Minors: Parks, Recreation and Tourism; Sports Management; Wildlife Biology

M.S. in Natural Resources

Ph.D. in Natural Resources

At the time of the review, there were approximately 689 students in RSENR's undergraduate programs overall. The majors considered here have enrollments of approximately 72 (Natural Resources), 62 (Parks, Recreation and Tourism), and 125 (Wildlife Fisheries and Biology). There are approximately 60 students in the Master's program and 70 students in the Doctoral program. The school's self-study indicates significant growth at both undergraduate (30% growth) and graduate (75% growth) levels over the past decade.

The school has doubled the size of its faculty over the last decade, and currently has 51 full-time faculty members. In support of its strong focus on integrated learning and interdisciplinary education, the school has maintained its program based structure to oversee its various majors rather than

establishing separate academic departments. Under this structure, the faculty function as a single entity.

The external review team undertook their work in two ways, first a summary of strengths, challenges, and recommendations for the school as a whole and second, separately for each program reviewed. We present our internal reviewers summary report in similar fashion.

Strengths of the School

- The high quality, interdisciplinary undergraduate experience across all programs, the effective integration of social science into the physical science program and applied, field-based learning
- The attention to diversity and cultural sensitivity shown across all programs
- The creation of a reputation of relevance and student empowerment leading to increasing enrollments
- Student satisfaction with placement opportunities (over 70% find employment within their chosen field within 3 years), and faculty commitment to mentoring and advising
- The integrated program model facilitated through collegiality and shared responsibility
- Confidence and cohesion around the school's mission fostered by the school's leadership
- Highly productive research program of the faculty, particularly given the significant investment of the faculty in teaching, service and student advising
- The graduate programs' excellent reputation and strong relationships internally, through the Rubenstein Graduate Student Association and externally through strong linkages to Vermont's natural resources agencies, the Vermont Law School and the Gund Institute.

Challenges facing the School

- Equitable staffing and engaging delivery of large core curriculum classes. Reviewers particularly noted the demanding nature of these courses as related to expectations and responsibilities of tenure-track faculty
- Managing advising and mentoring responsibilities as enrollments increase
- Impact of IBB on important laboratory and field courses
- Complexities of managing an integrated program model and adequate support/compensation for Program Directors
- Limitations of existing research facilities
- The future direction of the graduate program. The team noted the important trade-offs in expansion of the graduate programs as related to resources, teaching, research and support expectations of faculty as well as trade-offs between the needs of the Masters programs and the PhD program. They were particularly concerned about the shortage of graduate course offerings and the program's ability to grow to reach 100 PhD students as noted in the self-study given current faculty resources, funding and facilities.

External Reviewers' Recommendations

The reviewers made recommendations for the Undergraduate curriculum, assessment practices, the Graduate program, research support, and faculty and staff support.

Regarding the Undergraduate curriculum, the reviewers recommend continued investment in the integrated, service-based curriculum, guarding against erosion of the current "high-touch" approach that connects students with faculty. As well, the reviewers suggest the school revisit the content of the core curriculum continuously with attention to the creation of multiple pathways within the core to desired competencies in each program. The school indicates strong commitment to offering an interdisciplinary and integrated program with strong experiential learning opportunities. Program assessment will help determine the optimal number and depth of experiential learning courses. The school does not agree with the reviewers' suggestion of multiple pathways, interpreted as "tracks" within the Core Curriculum, explaining that would negate the intention of the core curriculum offering all RSENR graduates the same foundational skills, competencies and knowledge. The school's response emphasized that although noted in the external reviewers' report, the IBB model is not the underlying concern, but rather the point is about the unit's ability to cover the cost of experiential learning. The specific budget model is not relevant to this concern.

Regarding the assessment process, the reviewers recommend that school consider more clearly what will be done with the collected assessment data, as well as a simplification of the assessment process. The school notes the assessment data will be used to help refine curricular content and note that the assessment program will be evaluated for improvement in efficiency as need, following its first three-year cycle. Data from the assessment of the first learning outcome for the core curriculum has already been used to better align learning outcomes and signature assignments.

Regarding the Graduate program, the reviewers recommend School-wide discussions that identify bottlenecks and constraints in the RSENR graduate program, as well as the trade-offs between expansion of the graduate program and the delivery of the undergraduate curriculum. Specifically, they suggest clarifying relationships among graduate coursework, content and future Masters programs (including Professional MS opportunities), and the PhD program. The school agrees, noting the Associate Dean for Research and Graduate Programs will work with graduate faculty to align Graduate Program learning outcomes with assignments in the two required courses, comprehensive exams, and final defense and completion processes. Additionally, they will initiate a 5 year review of the graduate curriculum in Fall 2018. They note as well the new Professional MS degree program(s) will generate additional resources to support the research-based program. The school is actively seeking growth in its research program and has been successful in generating extramural funding to support these efforts for several years. The school has considered appropriate graduate enrollments to be about 150 students across both professional and research based programs.

Regarding research facilities and support, the reviewers recommend developing a clear case statement for donors to invest in research facilities and hiring a pre-award specialist in the RSENR financial office to help navigate proposals through the application process. The school indicates that case statements have been developed where appropriate and plans for NSF grant funding are underway. The school has identified funding to hire a .9 FTE pre-award specialist; this staff member is currently supporting the school as a 0.5 FTE position.

Regarding faculty and staff support, the reviewers recommend the school develop and monitor expectations for new faculty members. Specifically, they suggest considering a flexible distribution of

workload for tenure track faculty. The reviewers suggested the school work with the Office of the Provost to ensure that IBB does not adversely impact RSENR personnel who advise and mentor students within the Environmental Studies Program (ENVS) enrolled in CALS or CAS. The reviewers also recommend the school hire an additional professional advisor to work as part of the existing student support staff. Finally, the reviewers urge considering ways to increase the compensation of Program Directors. The school agrees with the need for continual mentoring and clear expectation for pre-tenure faculty. The school notes a faculty mentoring program in place since 2015. These considerations are a priority for the Associate Dean. The faculty disagreed with the need for a professional advisor. However, the school has hired a half-time Student Services assistant to help with routine advising questions since the time of the review. The Environmental Studies Program has established a full time advising position that is subsidized by all three participating units, proportionately to student representation in the program. The school has also implemented group advising and peer advising programs. The school notes the Program Directors are members of the UA and have no personnel responsibilities. They have primary responsibility for the curriculum. This is in contrast to Department chairs who do both. We are currently reviewing their compensation relative to other program directors on campus.

Wildlife Fisheries and Biology Program

The external reviewers remarked on the program's strong emphasis on experiential learning, which they note is highly valued by students but time-consuming for faculty. They also observed that this program features faculty with particular expertise in the natural sciences, which is particularly valuable against the backdrop of other RSENR programs (notably Natural Resources) where faculty expertise is more localized in the social sciences. They praised the faculty for their level of research despite substantial teaching requirements.

Strengths:

- Collegiality among faculty
- A strong partnership with the USGS Cooperative Fish and Wildlife Research Unit
- Students value the faculty commitment to experiential learning.
- Outstanding opportunities for undergraduate research, as well as a solid graduate research program
- The new course in Scientific Writing and Interpretation
- Evidence of high placement rates for graduates seeking professional positions related to their disciplinary training

Areas of Challenge:

- Small core faculty, exacerbated by one faculty member with an administrative appointment and one faculty member who has responsibility for the Rubenstein Ecosystem Science Laboratory
- Small core faculty limits undergraduate research opportunities (though they find laudable the extent to which these opportunities are available, given the circumstances).
- Students interviewed feel that the core curriculum requirements detract from opportunities to pursue courses of interest in the major.
- Students interviewed feel that the program takes a conservative approach to considering external experience as potentially obviating the need for certain prerequisites.

External Reviewers' Recommendations:

- In light of the existing plan to hire a new faculty member with wildlife expertise, consider instead recruiting an additional full-time lecturer to alleviate teaching overloads.
- Make a curricular change that is in keeping with a current trend in wildlife and fisheries programs: reduce the number of required organismal biology classes and replace them with courses more focused on management and on the human dimensions of wildlife and fisheries.

- Facilitate more experiential opportunities for undergraduates by strengthening existing partnerships and encouraging new ones with federal and state agencies and possibly NGOs.
- Centralize routine advising activities to free up faculty time.
- Protect experiential learning courses in the face of budgetary pressures that encourage high-enrollment course models.
- Consider ways to allow greater flexibility in the core curriculum in light of students who come to the program with relevant experience that might make some of the core content feel repetitive.

Unit Response:

The RSENR generally agreed with the external reviewers' account of the program's strengths but disagreed with a number of their recommendations. Some of these disagreements stem from the fact that the Unit believes that the external reviewers misunderstood two important things about the program: 1) the degree to which the social sciences are already integrated into the curriculum, and 2) the number of faculty serving the program (which is higher than the external reviewers' stated in their report).

Specific disagreements with the external reviewers' recommendations are as follows:

- They do not think it is advisable to hire a senior lecturer because they believe a tenure-track faculty member will better serve RSENR in emerging as a top environmental school. Plans exist for a tenure-track hire in AY 19, and possibly additional part-time support in AY18. The school has determined that staffing levels are adequate for AY18.
- They do not think their number of core faculty limits student research opportunities, as the percentage of WFB undergraduates engaged in research matches the percentage for RSENR overall.
- They do not believe the core curriculum should be modified because of its potential distraction from the WFB program—RSENR is very committed to Core Curriculum learning outcomes that complement Program learning outcomes.
- They do not believe they should replace organismal biology courses with interdisciplinary courses because dropping these courses would put students entering the wildlife field at a considerable disadvantage.
- They note that centralized advising has not been well received by faculty or students to date.

The Unit agrees, however, that they face pressure to maximize student credit hours, but they intend to maintain their firm commitment to experiential learning.

Natural Resources

The external reviewers noted the high esteem in which the faculty of the Natural Resources program are held. They also cited the balance between social and natural sciences as being an important feature of the program. Within the Natural Resources program there are three primary foci or pathways: Resource Ecology, Resource Planning and Integrated Natural Resources. The review team supported the program's desire to change the name to Ecology, Society and Sustainability which would better reflect the curriculum and align the program with other similar programs around the country.

Strengths:

- Faculty commitment to delivering a challenging curriculum and mentoring undergraduate students.
- Program adaptability in responding to student interest through adding options. For example, adding the Geospatial minor.
- High rate of satisfaction among students and alumni (who have attained success in careers or graduate schools).

Areas of challenge:

- Limited resources to implement program improvement ideas.
- Concerns around whether the Ecology, Society and Sustainability program name change will fully capture “resource ecology” pathway.
- Concerns about the distinctions between both Resource Planning and Resource Ecology and Resource Ecology versus Wildlife curriculum.
- Use of student portfolios-the review team felt they are a better tool for documenting evidence of development and achievement that students could use to assist in applying for graduate school or jobs rather than as an assessment tool for student progress.
- Advising load is too heavy for assisting students both with curricular/program pathway decisions as well as other issues students want to discuss (ex. Graduate teaching assistantships, career planning, graduate school).

External Reviewers Recommendations:

- Further integrate social and ecological sciences within newly named Ecology, Society and Sustainability program by requiring more advanced social science classes and more advanced ecology classes. Consider renaming “Resource Planning” or add more planning classes. Renaming the program would also capture the uniqueness of the program that sets it apart from other parallel programs at other institutions.
- Consider adding proposed socioecological classes, changing the degree name and adding a student portfolio requirement, but only if additional faculty and resources are added to the program.
- The Field Naturalist Proposal may enable the program to address the other recommendations by building in a social science component.

Unit Response:

Overall the RSENR agreed with the strengths identified by the external reviewers. As far as the challenges identified, the program acknowledged concerns raised about the curricular components of the pathways. To address this concern, the program committee chair will lead an internal program review to evaluate options to restructure it. They envision two possible outcomes: a.) restructure and redesign learning outcomes, b.) dissolve the program and align current concentrations with other existing programs. In regards to other recommendations, the name change is being considered if the program reaches agreement on curricular changes, however they must all engage faculty in a school-wide discussion given overlap of other programs with the pathways in NR.

Parks, Recreation and Tourism

The external review team acknowledged the Parks, Recreation and Tourism program for their role as a national leader in scholarship in this field.

Strengths:

- Graduates from the program are positioned well for job placements and this is affirmed by statistics that demonstrate high rates of employment.

- Throughout the curriculum there are opportunities for field-based experiences, travel and experiential education. Internships are a requirement of this program.
- Nationally recognized faculty.
- Student satisfaction is high. In fact, students specifically note faculty accessibility.
- Addition of sports management has increased career opportunities for students as well as campus collaboration.
- Students feel confident in their ability to engage in society given background in diversity.

Challenges:

- Retirement of Professor in Parks program leaves a hole in expertise in this core component of the program.
- Growth in numbers of students over last ten years is minimal and the program itself has not been targeted for growth within the School.
- Curriculum needs updating.
- Parks, Recreation and Tourism is not promoted as a major within the School or on the campus. It should be marketed more.

External Reviewers Recommendations:

- Hire a new faculty member who has expertise in Parks but fits within scope of PRT program.
- Update curriculum and pay attention to the connections within RSENR to avoid course overlap as well as learning sequence. Consider linkages between research and teaching. Facilitated leadership may assist faculty in this process of curriculum redesign.
- Consider a focus not just on environmental sustainability but also economic and social.
- Recognize importance of PRT within RSENR and the value it adds.
- Examine sports management to ensure it contributes to both PRT and RSENR missions.

Unit Response:

The program agreed with the external reviewers that it successfully prepares students for the job market and elaborated that the sports management minor and required internship are additional strengths. As far as challenges raised, they concurred that the curriculum needs updating and have begun a strategic planning effort to address this concern. Although they did not feel the retirement of the professor in the Park's program impacted their ability to deliver that curricular content, they felt it did have an impact on scholarship in this domain. However, as part of the strategic planning process, they intend to hire a new faculty member. In addition, they intend to leverage the strategic planning outcomes to engage in recruitment efforts to increase enrollment. This strategic planning process is currently underway and has three intended outcomes: a) evaluate disciplinary needs and target areas for curricular reform; b) develop a plan for the next generation of the Parks Studies Laboratory; and c.) prepare a job description for the next faculty hire.

Summary and Conclusions

Having reviewed the self-study report submitted by RSENR, the external reviewers' report and RSENR's response to the reviewers' report, the subcommittee strongly recommends approval of the RSENR undergraduate and graduate programs reviewed through the current APR. The subcommittee appreciates the careful preparation and consideration which has been given to this

process by the members of RSENR. The external reviewers were highly favorable in their summary of the program strengths, noting the high quality of RSENR personnel and students, along with their dedication to the school's mission. They found the integrated program structure, core curriculum, and service-learning courses to be unique among current offerings in the field. They agreed with the unit's assessment that it is indeed a "special place", noting the school ranks highly in terms of student satisfaction, learning, employment and motivation. The subcommittee concurs with the reviewers' positive assessment of the RSENR programs and appreciates the careful consideration which has been given to their recommendations.