SPECIAL REPORT

of the

ACADEMIC MATTERS, ACADEMIC PRIORITIES, GRADUATE, PROGRAM AND BUDGET AND RESEARCH COUNCILS

concerning the

ESTABLISHMENT OF A
SCHOOL OF EARTH AND SUSTAINABILITY

Presented at the
754th Regular Meeting of the Faculty Senate
January 28, 2016

COUNCIL MEMBERSHIP

ACADEMIC MATTERS COUNCIL

ACADEMIC PRIORITIES COUNCIL
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GRADUATE COUNCIL

PROGRAM AND BUDGET COUNCIL

RESEARCH COUNCIL
ACADEMIC MATTER COUNCIL
The Department of Environmental Conservation, Department of Geosciences, and Stockbridge School of Agriculture are proposing to establish a School of Earth and Sustainability within the College of Natural Sciences (CNS). The proposed school will organize together a total of 18 undergraduate and 5 graduate degree programs that share a focus on earth, sustainability, and environmental sciences. The purpose in establishing a School is to provide a structure for interdisciplinary collaboration that will enhance research, education, training, innovation, and outreach. The School will have a director appointed by the Dean of CNS, along with an inter-unit steering committee to provide guidance and foster coordination between programs.

At its meeting on October 21, 2015, the Academic Matters Council voted unanimously to recommend Faculty Senate approval of the Establishment of a School of Earth and Sustainability. It was submitted as proposal #2176 in the Course and Curriculum Management System.

ACADEMIC PRIORITIES COUNCIL
Proposal #2176 is to create a new School of Earth and Sustainability (SES). Based in the College of Natural Sciences (CNS), this new School will be a central hub for a suite of academic programs, research, and outreach/extension activities related to the environmental issues of the 21st century. SES will help UMass Amherst to raise the external profile of our university’s significant strengths in earth, sustainability and environmental sciences, while also strengthening collaboration and coordination between partnering units and the broader university community. Following some discussion of the proposed name for this new school, the APC, at its meeting on December 17, 2015, recommended approval of the proposal.

GRADUATE COUNCIL
The Academic Standards and Curriculum Committee (ASCC) of the Graduate Council met on November 4, 2015 and reviewed the proposal for the Establishment of a School of Earth and Sustainability. The ASCC recommended this proposal for approval.

On Wednesday, November 18, 2015, the Graduate Council unanimously approved the Establishment of a School of Earth and Sustainability, proposal #2176 in the Course and Curriculum Management System.

PROGRAM AND BUDGET COUNCIL
The Program Subcommittee of the Program and Budget Council met on November 4, 2015, reviewed the proposal for the Establishment of a School of Earth and Sustainability, and recommended it for approval.

At its meeting on Wednesday, November 18, 2015, the Program and Budget Council voted to unanimously approve the Establishment of a School of Earth and Sustainability. It was submitted as proposal #2176 in the Course and Curriculum Management System.

RESEARCH COUNCIL
At its regular meeting on November 13, 2015, the Research Council discussed the proposal for a School of Earth and Sustainability to be formed within the College of Natural Sciences, comprising the Department of Environmental Conservation, Department of Geosciences, and Stockbridge School of Agriculture. Two of the proposers, Prof. Craig Nicolson and Prof. Curtice Griffin, were present and answered a number of questions. Members of the Research Council desired to understand how much organizational/bureaucratic structure the new School would imply (not much), the level of consultation and agreement of concerned parties (high), and the primary benefits of the proposed School. The Council members were satisfied by the answers, which framed the School primarily as an issue of “branding,” particularly for undergraduates, but which might also be leveraged some for grant funding, faculty hiring, etc. The School would recognize the existing cooperation of its departments, particularly around undergraduate curricula. The Research Council endorsed the proposal unanimously, after making various suggestions as to how the new School might further capitalize on the new “brand,” particularly with regards to graduate education, recruitment, and development opportunities.

MOVED: That the Faculty Senate approve the Establishment of a School of Earth and Sustainability, 10-16 as presented in Sen. Doc. No. 16-031.
Proposal to Establish a School of Earth and Sustainability

The faculty in the Department of Environmental Conservation, Department of Geosciences, and the Stockbridge School of Agriculture jointly submit this proposal to create a new **School of Earth and Sustainability** (SES). Based in the College of Natural Sciences (CNS), this new School will be a central hub for a suite of academic programs, research, and outreach/extension activities related to the environmental issues of the 21st century. SES will help UMass Amherst to raise the external profile of our university’s significant strengths in earth, sustainability and environmental sciences, while also strengthening collaboration and coordination between partnering units and the broader university community.

The vision that underpins this new School was developed within the College of Natural Sciences in consultation with the Provost, Faculty Senate Secretary, and other deans and partners across campus. The proposal was developed in accordance with Faculty Senate Document Number 12-021A (dated 02/02/12).

1. **Name:** School of Earth and Sustainability

2. **Submitted by:** Department of Environmental Conservation (ECo), Department of Geosciences (GEO), and the Stockbridge School of Agriculture (SSA). *(Please note that the Stockbridge School of Agriculture was redefined in 2012 as a “school within a college” in accordance with Faculty Senate Document Number 12-021A; however, it functions in all ways as a department within CNS.)*

3. **Participating Programs:** Initially, the School will organize together undergraduate programs, graduate programs, and associated research from the three units. This includes the 18 undergraduate degree programs, including associate [AS] and bachelor, and 5 graduate degree programs listed below, as well as minors, certificates, and related outreach/extension programs.
   - **Undergraduate programs:** Arboriculture & Community Forestry (AS), Building & Construction Technology (BS), Earth Systems (BS), Environmental Science (BS), Equine Management (AS), Geography (BA, BS), Geology (BA, BS), Landscape Contracting (AS), Natural Resources Conservation (BS), Plant, Soil & Insect Sciences (BS), Sustainable Food & Farming (AS, BS), Sustainable Horticulture (AS, BS), and Turfgrass Science & Management (AS, BS)
   - **Graduate programs:** Environmental Conservation, Geography, Geosciences, Plant & Soil Sciences, and Sustainability Science

4. **Rationale:** SES will address a number of priorities and goals set by CNS, the partnering units, and the campus’s Sustainable UMass\(^1\) coalition. It will provide a central hub for research, education, training, innovation and extension related to earth, sustainability, and environmental sciences. This will result in formal coordination between Environmental Conservation, Geosciences, and Stockbridge School of Agriculture and their academic programs. By forming an academic and research cluster, the School will maximize the potential to recruit top-quality students and faculty. Finally, SES will elevate the reputation of the UMass flagship campus and the entire system as a leader in earth, sustainability, and environmental sciences.

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\(^1\)Sustainable UMass is a cross-campus initiative and collaboration led by Academic Affairs, Physical Plant and Auxiliary Services to better coordinate and integrate sustainability initiatives across campus. It also has a recognized and branded identity to help elevate the university’s reputation.
5. **Support and Approval**: There is broad support for the School across the participating units, and at the college, Provost and Chancellor levels. As an expression of this support, the following are voting outcomes during summer 2015:
   - ECo faculty voted: 26 in support and 0 opposed
   - SSA faculty voted: 19 in support and 0 opposed
   - GEO faculty voted: 17 in support and 2 were opposed

In total, 62 faculty members voted in support of the School. With 97% of faculty in favor of establishing the School, the partnering units are confident that this initiative is an important next advancement for the future of our programs and cross-college collaboration.

6. **Budget and Governance**: CNS will provide the budget and support to launch the School and provide funds for its continued operation, including the director’s salary. Existing staff will be utilized, where possible. The CNS Dean, in close consultation with the heads of the three partner units, will appoint the director. An inter-unit steering committee will be formed to guide the School, and to help foster awareness and coordination between programs.

I. **Context and Rationale**

   A. **Background**
   The fields of earth, sustainability, and environmental sciences require knowledge and expertise that move beyond a traditional single disciplinary focus. For higher education institutions, this can be a challenge with research and degree programs traditionally housed in single-unit departments. There is a national trend of universities exploring ways to adapt their organizational structure in an effort to build stronger connections between degree programs, faculty, research and outreach/extension activities that reside in different units but share a common focus.

   Numerous peer institutions, including some of the nation’s top universities, have created a “school” to address the limitations of single unit departments and support transdisciplinary training and research. The universities with a school for the earth, sustainability, and environmental programs include University of Michigan, Columbia University, Duke University, Arizona State University, University of Vermont, and Portland State University. We point out that the University of Massachusetts Boston has a new school with this focus. Schools typically associate undergraduate programs, graduate programs, research, and extension (Appendix B).

   Here at UMass Amherst, three CNS units have courses, degree programs, faculty, research, and extension that share a common focus in earth, sustainability, and environmental sciences. The creation of the School will provide an overarching structure between three CNS units and will form a cluster of programs and faculty that allow us to highlight an area of strength and prestige for the university. Collectively, Environmental Conservation, Geosciences and Stockbridge School of Agriculture offer 18 undergraduate degree programs and five graduate programs, include more than 1,000 undergraduates and 230 graduate students, and are comprised of 70 faculty members.

   B. **Why a School?**
   The **School of Earth and Sustainability advances a key priority for CNS, the academic units, and Sustainable UMass**. Compared with many other R1 universities, UMass Amherst has an unusually strong suite of degree programs, research, and innovation in the applied environmental disciplines (conservation, agriculture, earth sciences, renewable energy, sustainable building and design, climate sciences, environmental policy and decision making, etc.). The three units associated with this proposal form a core of the degree programs and research related to earth, sustainability, and environmental sciences within CNS. Establishing a

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2 The concept of more integrated approaches to this diverse field is gaining broad support. For the purpose of this proposal, transdisciplinary is defined as an integrative approach that promotes cross-departmental collaboration and draws on educational experiences, coursework, knowledge, and research from various disciplines within CNS.
formal School will provide the presently-missing organizational framework or “glue” needed to foster stronger connections between these programs and their administering units.

SES will serve as the central hub for innovation, research, education and outreach related to earth, sustainability and environmental sciences. SES will establish an enduring institutional mechanism to improve inter-unit communication, coordination, and collaboration. Faculty will become more familiar with colleagues and research outside their academic units through various engagement opportunities and events hosted by SES. The School will improve our students’ experiences within their degree programs by making it easier to find the major that matches their interests, and to access information and support outside the classroom. In keeping with the CNS strategic plan, a comprehensive framework will be developed for immersive learning, which will connect students to meaningful experiences in a systematic way. The School will also support the development of new transdisciplinary undergraduate and graduate programs and initiatives, including the creation of public-private partnerships to better serve the Commonwealth and further strengthen our ties to agencies, industries, communities, businesses, and the expanding green workforce.

The School will formalize the connections between participating units, bridging our individual programs, and strengthening coordination across units, degree programs and research, and streamlining the administration and support of the programs. The Faculty Senate Document Number 012-21A envisions that a group of Academic Programs may want to promote a common identity for reasons related to “instruction, outreach, or any other goals”. Since environmental and sustainability education and research is inherently transdisciplinary, the School will also serve as an ongoing institutional structure that will foster regular interactions between program directors and faculty from multiple units, including the sharing of research, best practices in teaching and advising, outreach, and opportunities for collaboration. Where possible, SES will work to improve shared services, the efficiency of resources, and student success, supplementing gaps where possible. Recognizing that the three units submitting this proposal do not encompass all of the sustainability teaching, research and outreach/extension activities on campus, SES also offers the opportunity to build partnerships across campus beyond CNS.

For recruitment purposes, the School will allow us to create a cohesive identity and framework for promoting our diverse degree, research, and outreach programs. By showcasing these programs together, UMass will communicate more effectively our depth and expertise in these subjects. For prospective students, the School captures in a single snapshot the numerous degree programs available with consistent messaging and information about each program. For faculty and extension staff, it will attract researchers and new faculty interested in transdisciplinary research and translation, and an institution with a collegial culture.

By creating this School and promoting collectively the broad set of degree programs, research and outreach/extension, UMass Amherst will further enhance its visibility as the leading university in earth, sustainability and environmental sciences in the northeast. The campus’s excellence arises not only from the breadth of its degree programs and research, but on its growing national reputation in this area, as evidenced by our growing numbers of national honors and awards.

In summary, this new School will raise the external profile of the University, and simultaneously strengthen the collaboration and coordination of our partnering units. These two goals position UMass Amherst as the destination of choice for students, researchers and private partners who share a passion for earth, sustainability, and the environment.

C. Proposal Development Process
Guided by campus, college, and unit planning over the past year, this proposal was developed in collaboration with Environmental Conservation, Geosciences and Stockbridge School of Agriculture through a bottom-up process that has been continuously encouraged and supported at the top level of the college.

3 For example, three consecutive Gold ratings from AASHE since 2011, 1st place in the 2012 White House Campus Champions of Change Competition, the 2014 Climate Leadership Award from Second Nature, and rated by the Princeton Review in 2014 and 2015 in their listing of top 20 most environmentally responsible research universities.
The School emerged as a shared priority for CNS, the academic units, and Sustainable UMass through numerous strategic planning processes, including unit-level Academic Quality Assessment and Development (AQAD) program review and the campus-wide Joint Task Force on Strategic Oversight (JTFSO) Phase III Strategic Plan (Appendix C). Specifically, the units recognized the potential for this key initiative to improve education and research related to earth, sustainability and environmental sciences. It was also one of the six key elements in CNS’s strategic plan for undergraduate education. From the campus perspective, it was one of the top recommendations for the campus as part of the Sustainable UMass AdQAD External Review Report.

In fall 2014, the three units formed an exploratory committee to carefully examine the school concept. This committee was comprised of the three heads, plus academic program faculty and staff. The committee worked through a collaborative approach to explore the concept with faculty, engage with campus partners and stakeholders, review potential concerns, and develop this proposal through an iterative, inclusive process. The outcome was that SES earned the strong support from the participating academic units and CNS Dean. To ensure this initiative was understood and anticipated beyond the college, the exploratory committee also communicated with relevant departments outside of CNS while Dean Goodwin provided other deans and the Provost with regular updates. The proposal development process was motivated to build lasting partnerships with key stakeholders so that the School will be the first of a number of related initiatives implemented in the coming years to enhance earth, sustainability, and environmental programs.

II. School Organization and Governance

A. Partners/Programs
The School will be established within CNS through an inter-unit partnership with the Department of Environmental Conservation, Department of Geosciences, and Stockbridge School of Agriculture. While these units have their own unique identities and strong reputations within their respective fields, they also share a common focus with complementary overlap. For example, the three units currently collaborate in offering the very successful inter-unit Environmental Science undergraduate program, with faculty from each unit offering core courses, undergraduate research experiences, and mentoring students. SES is a natural progression and an opportunity to expand collaboration across programs. By partnering together, the diverse group of faculty, research, educational and extension programs gain broader recognition with more opportunities for cross-unit partnerships.

The School will coordinate and promote a comprehensive set of existing CNS degree programs held by these academic units as well as highlight related transdisciplinary research. Numerous current undergraduate programs will be associated with the School, including an online certificate, 6 Associate of Science (AS) degree programs, 12 bachelor degree programs, and 6 minors (Table 1). Additionally, there will be 5 graduate programs in the School with a range of advanced degree options, including professional Master’s, Master’s of Science (MS), and Doctorate of Philosophy (PhD) (Table 2). The participation of the academic units will be through their respective undergraduate and graduate degree programs, and their inter-unit Environmental Science undergraduate program. Administering units will retain their individual identities, faculty, and relationship to home College. Involvement with the School will have no impact on allocation of teaching credit.

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4 For more information on the Sustainable UMass Administrative Quality Assessment & Development Review (AdQAD) review process, please see: Sustainable UMass AdQAD External Review Report: Findings, Observations, and Recommendations, dated 9/15/14, pg. 4
Table 1. List of Undergraduate programs to be included in SES

**Undergraduate Programs**

**ECo**
- Building & Construction Technology (BS, minor)
- Natural Resources Conservation (BS, minor)

**GEO**
- Earth Systems (BS)
- Geography (BA, BS)
- Geology (BA, BS, minor)

**SSA**
- Arboriculture & Community Forest Management (AS)
- Equine Management (AS)
- Landscape Contracting (AS)
- Plant and Soil Science (minor)
- Plant Pathology (minor)
- Plant, Soil & Insect Sciences (BS)
- Sustainable Food & Farming (online certificate, AS, BS)
- Sustainable Horticulture (AS, BS)
- Turfgrass Science & Management (AS, BS)

**Inter-unit**
- Environmental Science (BS, minor)

Table 2. List of Graduate programs to be included in SES

**Graduate Programs**

**ECo**
- Environmental Conservation (MS/PhD)
- Sustainability Science (MS)

**GEO**
- Geography (MS)
- Geosciences (MS/PhD)

**SSA**
- Plant & Soil Sciences (MS)

*Note: Faculty from each of the units may also train students in other CNS interdepartmental graduate programs (e.g., Plant Biology, Organismic & Evolutionary Biology), but these programs will not be associated with School.*

A central purpose of this School is fostering coordination within CNS of a set of existing intellectually allied academic programs. Nationally, however, this landscape is evolving rapidly and we can easily foresee emerging programs and research that will also fit appropriately within the School. For example, the partnering units have identified a shared interest in developing both a new bachelor’s degree program and a research-focused PhD program related to sustainability. In addition, while we are proposing SES as a “School within a single College,” (see Sen. Doc. No. 012-21A), we also foresee and welcome participation of units outside of CNS.

**B. Services**

The School will provide a number of overarching services to the degree programs, associated academic units, faculty, and research. The unit-based programs will benefit from cohesive support and services, including: a unified brand and marketing plan, student recruitment, a comprehensive framework for immersive learning opportunities, and advising support. From the college, these shared services will also reduce inefficiencies and build upon best practices.

As a central hub for earth, sustainability, and the environmental sciences, the School will provide valuable services to the Commonwealth and beyond. SES will support and promote transdisciplinary research, innovation, educational training, student leadership, and engagement with diverse stakeholders (e.g., agencies, industries, communities, businesses, and the green workforce).
C. Governance

The School does not duplicate any unit structures, and will have the following elements:

• **Director.** The Dean of CNS in consultation with department heads of the three units will appoint the Director. The primary role of the Director will be to lead the School, and oversee its operations and initiatives.

• **Interdepartmental Steering Committee.** The steering committee will be comprised of the heads and two additional faculty from each academic unit. Appointed by the CNS Dean, the committee will ensure the academic unit’s interests are well represented and that there is consistency between the School, their associated programs, and the administering units. The committee will also advise the School on how to fulfill its broader commitments to the university and its stakeholders.

• **Governance.** The Director and steering committee will govern the School. Other academic programs may choose to affiliate with the School with the consent of the Director, steering committee, and the CNS Dean.

• **Advisory Committee.** The School will have an external advisory board, including, for example, alumni, employers in the public and private sectors, high school and community college representatives, and public officials, for the purposes of advising the leadership of the SES and promoting the School publicly.

• **Review.** The Director will submit an annual report to the steering committee that assesses the School’s progress in fulfilling its mission and makes recommendations for ongoing improvements.

III. Budget Considerations

This section details the basic budget for the new School, including the staff support, expenses and in-kind resources necessary to meet a set of goals for launching and operating SES in a given fiscal year. The School largely builds upon existing programs and resources; therefore CNS, departments, or campus partners already provide many of the costs and services. To the extent possible, the School will work to centralize costs to streamline services, remove redundancies, and maximize the efficiency of limited resources. The CNS Dean has committed to support the School and provide the necessary resources needed to accomplish SES’s objectives (see Appendix A).

The School will have dedicated staff, including a director and two professional staff members. This support will draw largely on existing positions. A faculty member from one of the partnering departments will serve as the new School Director. This appointment will involve reassigning that individual, expanding their appointment to include the duties of overseeing the school, and adjusting the salary to reflect the added responsibilities. The two professional positions already exist within CNS and are supporting various programs to be included in SES; and the Dean of CNS will reassign their responsibilities to support the School. SES will also provide employment opportunities to a mix of undergraduate and graduate students on an hourly basis.

Table 3 outlines the School’s core staffing needs, as well as additional support.

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<th>Table 3. SES Leadership and Staff</th>
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<tr>
<td><strong>Core Staff</strong></td>
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<tr>
<td>Director (Reassigned from current faculty)</td>
</tr>
<tr>
<td>Assistant Director, Program Development and Management (existing position within CNS)</td>
</tr>
<tr>
<td>Assistant Director, Curriculum Development and Engaged Learning (existing position within CNS)</td>
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<tr>
<td><strong>Support Staff</strong></td>
</tr>
<tr>
<td>Approx. 1-3 student employees</td>
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To improve budget efficiencies, the Director and Steering Committee will launch collaborative initiatives utilizing in-kind support and services from within CNS and beyond to provide student support services (e.g., advising, career development, internship program) at the school level. Additionally, SES will partner with University Relations to help elevate the university’s leadership in sustainability. This will include brand development, key messaging, and the creation of introductory marketing materials and information (e.g., website, e-newsletter).

With these considerations in mind, the following is the proposed SES budget. The projected expenses are based on a number of considerations that may change with time. The budget also incorporates in-kind support and services. A full detailed budget will be developed once the School is approved and the partnering departments initiate the School Planning and Development process.
Draft proposed Budget for SES in a given fiscal year

Direct Expenses:

Salaries (director, two professional staff, student workers)  $20,000-$30,000 (new costs associated with salary adjustment for director position & student worker salaries)

Recruitment and Marketing  10,000

Engagement and Public Service (e.g., seminar Series, community events, Workforce Advisory Group)  15,000

Student Support and Services (e.g., advising, Internship program)  10,000

Other administrative costs (e.g., equipment, Supplies, travel)  8,000

IV. Internal Support and Approval

The concept for the School has been in discussions for several years and identified as a shared priority through numerous planning processes. The SES Proposal followed the necessary administrative steps to secure broad support and approval from participating unit faculty as well as from other campus units. Faculty in all of the participating units endorsed the establishment of the School with the following voting outcomes:

- ECo: out of 34 faculty, 26 voted in favor, none opposed, and 1 abstained
- GEO: out of 24 faculty, 17 voted in favor, 2 opposed, and 5 abstained
- SSA: out of 21 faculty, 19 voted in favor, none opposed, and 2 abstained
- Total: 62 faculty in favor and 2 opposed. 97% in support of the School

Appendix A: Letters of Support
Appendix B: Comparison of Peer Institutions with Schools
Appendix C: Strategic Plan Excepts

(Please see Proposal #2176 in the Course and Curriculum Management System to view Appendices.)