Curricular Affairs Committee of the Faculty Senate
Minutes

Thursday, March 7, 2019, 4:15 – 6:15 pm

Present: Professors Almstead, Dale, Dickinson, Emery, Erickson, Everse, Garrison, Kasser, Kervick, Marshall, Monsen, Nichols, Paris, Rosebush, Rowe, Seidl, Sisk, Strickler, Tomas, GSS Representative Camille Marcotte

Absent: Professor Goodwin, Hazelrigg, Ivakhiv, Ultsch, Wojewoda, SGA Representative Abigail Robbins

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

Chair Almstead called the meeting to order at 4:18 pm in 427A Waterman.

I. **Approval of the Minutes**. The February 2019 meeting was cancelled, and an electronic ballot was distributed for approval of the minutes of the January 3, 2019, and for the proposal from the College of Education and Social Services for a new Minor in Special Education: Endorsement (attached to these minutes). Both items were unanimously approved by electronic ballot.

II. **Chair's Remarks**
All items approved by the CAC at the January meeting were approved by the Faculty Senate. Everything presented to the Board of Trustees at the February meeting, which included the items approved at the January Senate meeting, was approved.

III. **Reports – New Programs & Revisions**

A. **New Minor in Computer Science Education (CESS).** Erik Monsen and Jennifer Sisk acted as the review subcommittee and their report is attached to these minutes. The subcommittee recommended approval the proposal for a new Minor in Computer Science Education, submitted by the Departments of Education (CESS), and Computer Science (CEMS), for a start date of Fall 2019.
Motion: Meaghan Emery moved to approve the new Minor in Computer Science Education in the College of Education and Social Services.
Vote: 18 Approve, 0 Oppose, 2 Abstain

B. **New concentration in Computer Science, Secondary Ed. Major (CESS).** Laura Almstead presented a request from the College of Education and Social Services, Department of Education in collaboration with the College of Engineering and Mathematical Science, Department of Computer Science for a new Computer Science concentration in Secondary

Education for students seeking initial certification to teach computer science in grades 7-12 in Vermont. The proposal is attached to these minutes.
Motion: Meaghan Emery moved to approve the new concentration in Computer Science, Secondary Ed. Major in the College of Education and Social Services.
Vote: 18 Approve, 0 Oppose, 2 Abstain

C. **Significant revisions to the CDE Certificate in Gerontology (CESS/CDE).** Steven Everse and Amy Seidl acted as the review subcommittee and their report is attached to these minutes. The subcommittee recommends approval of the proposal for a significant revision to the Continuing Education Academic Certificate in Gerontology submitted by the Human Development and Family Studies Program within the Department of Leadership and Developmental Science in the College of Education and Social Services. The revitalized Certificate in Gerontology will meet the demand for professionals trained in gerontology and position its graduates to work directly with elders.
Motion: Erik Monsen moved to approve the significant revisions to the CDE Certificate in Gerontology in the College of Education and Social Services and Continuing and Distance Education.
Vote: 20 Approve, 0 Oppose, 0 Abstain

IV. **APR Reports** – none at this time

V. **Other Business:**

A. **Civic Learning course designation and revision SL designation.** Susan Munkres, Director of the Office of Community-University Partnerships & Service-Learning (CUPS) proposed to revise the Service-Learning course designation to a "dual designation" that will consist of a Service-Learning (SL) designation as well as a Civic-Learning (CL) designation. This revision will also make the standards for SL designation more rigorous. The proposal is attached to these minutes.
Motion: Meaghan Emery moved to support the proposal for the new Civic-Learning course designation and revision of the Service-Learning designation. The motion was seconded and carried.
Vote: **20 Approve**, 0 Oppose, 0 Abstain

B. **Uncontested termination ENSC Environmental Chemistry Concentration.** Laura Almstead reported that a request was received from the Colleges of Arts and Sciences, Agriculture and Life Sciences, and the Rubenstein School of Environment and Natural Resources to remove the Environmental Chemistry focus track in the Environmental Sciences (ENSC) major. The proposal is attached to these minutes.
Motion: Stephen Everse moved to approve the request for the uncontested termination of the ENSC Environmental Chemistry Concentration. The motion was seconded and carried.
Vote: 20 Approve, 0 Oppose, 0 Abstain

C. **Educational Stewardship Committee (ESC) – General Education subcommittee work.** Brian Reed reported that the ESC recently formed a General Education subcommittee in response to the 10-year accreditation report to the New England Commission on Higher Education (NECHE). The NECHE standard is 40 credits of general education for a standard

baccalaureate degree. UVM's general education credits are currently earned through four general education requirements and with credits embedded in the requirements for individual majors. The ESC subcommittee on general education is looking at other NECHE accredited institutions for ideas for creating consistency across units, and an administrative model that will work for UVM. The Association of American Colleges and Universities will be holding the 2019 Institute on General Education and Assessment (IGEA) at UVM June 4-7. A five-person team from UVM will participate in the IGEA with the goal of producing a General Education plan for UVM to present to the Senate in the fall.

D. **New Enrollment demand analysis service available.** Brian Reed discussed a memo attached to these minutes regarding a new Enrollment Demand Analysis available to academic units considering the development of a new program.

VI. **New Business:**

A. **Review subcommittees assigned:**

- Significant revisions to the Individually Designed Major in CESS - J. Dickinson and Meaghan Emery
- Transition of Dietetics MDS to online program – Ellen Rowe and Colby Kervick

B. **CAC Consent Agenda at Senate Meetings.** Cathy Paris reported that beginning at the March Faculty Senate meeting, the slate of CAC actions will be presented as a consent agenda. Senators will continue to receive the CAC's detailed reports for each item on the CAC consent agenda with the posted Senate agenda and meeting materials at least one week in advance of the Senate meeting. The consent agenda allows the slate of actions to be approved with one motion and one vote by the Senate, rather than requiring motions and votes on each individual item. Items that created controversial discussion in the CAC review process will not be placed on the consent agenda, and will default to an individual discussion and vote by the Senate.

VII. **Adjournment.** Ellen Rowe moved to adjourn at 5:40 p.m. The motion was seconded and carried.

Timestamp	Approval of the minutes fr	Approval of the proposal for a new Minor in Special Education: Endorsement.		
2/2/2019 23:31:28	Approve	Abstain		
2/3/2019 7:52:29	Approve	Approve		
2/3/2019 8:46:58	Abstain	Approve		
2/3/2019 8:47:39	Abstain	Approve		
2/3/2019 9:25:51	Approve	Approve		
2/3/2019 11:52:04	Abstain	Approve		
2/3/2019 13:50:58	Approve	Approve		
2/3/2019 14:13:39	Approve	Approve		
2/3/2019 15:47:26	Approve	Approve		
2/3/2019 18:36:44	Approve	Approve		
2/3/2019 18:58:36	Approve	Approve		
2/3/2019 22:23:02	Approve	Approve		
2/4/2019 9:04:18	Approve	Approve		
2/4/2019 10:52:09	Approve	Approve		
2/4/2019 14:08:50	Approve	Approve		
2/4/2019 20:06:46	Approve	Approve		
2/5/2019 12:29:48	Approve	Approve		
2/5/2019 14:33:35	Approve	Approve		
2/5/2019 20:36:50	Approve	Approve		
2/7/2019 16:04:28	Approve	Approve		
2/7/2019 16:08:31	Approve	Approve		
2/7/2019 17:37:40	Approve	Approve		

Curricular Affairs Committee of the Faculty Senate

MEMO

To: Curricular Affairs Committee of the Faculty Senate
From: **Erik Monsen, Jennifer Sisk**
Date: **2/25/2019**
Re: Approval of a proposal for a new Minor in Computer Science Education submitted by the Departments of Education and Computer Science

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We have reviewed a proposal for a Minor in Computer Science Education submitted by the Departments of Education (College of Education and Social Services) and Computer Science (College of Engineering and Mathematical Sciences) and recommend Approval for a start date of Fall 2019.

Program Description and Rationale

The Minor in Computer Science Education is designed for students interested in computer science education in school settings, as well as computer science education in other settings. The Computer Science Education minor reflects the important knowledge and skills that computer literate students and teachers will need in order to communicate and interact in today's technological world. All of the courses identified in this minor align with the Vermont Agency of Education's endorsement standards for teaching computer science and will be offered either though the Department of Computer Science or the Department of Education. Each of these courses includes a focus on the increasing computational thinking and literacy needed in today's schools and/or communities. This focus will enhance the knowledge and experience of both Education majors who are preparing to teach computer science in grades 7-12 and non-Education majors who will work in professions that may require teaching about computational literacy.

Of central significance is the collaboration between UVM's Computer Science and Education departments in program design and implementation. This alliance provides an opportunity for innovative programming, rich dialogue, and collaborative teaching and research between faculty in both departments. This will also provide an opportunity for each department to update and expand its curriculum to ensure that all students who graduate with a CSE minor will have a deep understanding of computational thinking and its significance in transforming education, as well as practical and meaningful ways to integrate CS into their teaching practice.

UVM is well situated to advance the new CSE minor and concentration following the approval of **Act 77** legislation that supports the development of personalized learning plans and flexible pathways to graduation for all students. The new CSE minor will build on the legislature's commitment to support programming to increase educational opportunities, particularly for those students who have traditionally been underserved in CS education and careers. In addition, the creation of the new minor aligns with the state's demonstrated interest in promoting STEM education -- a strategic goal of UVM, CESS, CEMS, the Vermont Agency of Education, business leaders, and the state government.

Justification and Evidence for Demand

Vermont's IT future is bright and job growth is projected to remain strong over the next decade; however, there is a disparity between CS employment opportunities and the CS learning opportunities available for students in the state. Vermont's minimal adoption of computer science education standards places it in the bottom tier in

the US (with 9 other states). A joint study by the Association for Computing Machinery (ACM) and the Computer Science Teachers Association (CSTA) notes that these nine states give no attention to Level II or Level III standards at the secondary level and have adopted less than 10% of CS concepts overall (Wilson et al., 2010). Further, only 8 high schools in VT offer an Advanced Placement (AP) Computer Science Principles course and only 26 teachers (or less than 1%) are licensed to teach CS. A recent statewide survey conducted by Vermont Agency of Education (VT AOE) revealed that over 600 teachers in Vermont were interested in furthering their knowledge of computer science via professional learning and coursework (VT AOE, 2018).

Relationship to Existing Programs

The Computer Science Education (CSE) minor is fully aligned with the VT AOE endorsement standards for licensure to teach computer science in Vermont. Each of the required computer science courses are current offerings in the Department of Computer Science that may overlap with the computer science minor with the exception of the computer science methods course (EDSC 237 - Teaching Computer Science in Secondary School).

The Computer Science Education (CSE) minor is similar in content and title to the Computer Science minor. The Computer Science minor offered by CEMS is 18 credits with at least 9 credits at the 100 level or above. The Computer Science Education minor is 19 credits with 5 specific CS courses (2 at the 100 level) and 1 specific Education course (at the 200 level). Students with a minor in Computer Science cannot also minor in Computer Science Education.

Curriculum

The Computer Science Education minor requires students to take 5 specifically identified CS courses (aligned to VT AOE endorsement standards for computer science licensure) and EDSC 237 - Teaching Computer Science in Secondary School. The table below lists these courses.

All of the minor courses are currently offered by the Computer Science Department with the exception of the methods course, EDSC 237, which has been co-developed by faculty in CS and the DOE.

CS 008: Intro to Web Design – 3 credits - **EXISTING COURSE**
CS 021: Introductory Programming in Python – 3 credits - **EXISTING COURSE**
CS 087: Intro to Data Science – 3 credits - **EXISTING COURSE**
CS 110: Intermediate Programming in Java - 4 credits - **EXISTING COURSE**
CS 121: Computer Organization – 3 credits - **EXISTING COURSE**
EDSC 237 - Teaching Computer Science in Secondary School – 3 credits - **NEW COURSE**

Some of the courses listed as part of the CSE minor are scaffolded. CS 021: Computer Programming is a prerequisite for CS 110: Intermediate Programming. CS 110: Intermediate Programming is a prerequisite for CS 121: Computer Organization.

In addition, EDSC 237 has its own prerequisite: EDSC 216 - Curriculum, Instruction and Assessment in Secondary School. This course is already required for Secondary Education majors.

Admission Requirements and Process

This minor is designed for students interested in teaching computer science in secondary school or teaching Computer Science in other settings. The majority of students who enroll in this minor will be students in the secondary education program interested in adding a secondary endorsement to their primary licensure endorsement (e.g. mathematics, science, English, social studies, and foreign language). With that said, the

minor will be open to all students who are interested in computer science education with the exception of students with the following majors:

- BS Computer Science
- BA Computer Science
- BS Computer Science Information Systems
- BS Data Science

In addition, students with a minor in Computer Science cannot also minor in Computer Science Education.

Anticipated Enrollment and Impact on Current Programs

Initially the proposers anticipate a modest enrollment in the minor primarily from students in the secondary education program. All of the existing courses in Computer Science will accommodate the current student interest and need with the exception that a new course (EDSC 237 - Teaching Computer Science in Secondary School) has been developed for this minor.

Advising

Note that that the guidelines do not explicitly include a section for advising. Therefore, the program proposer very kindly provided us with additional information, which is discussed here and provided in Appendix A.

A co-advisor model will be adopted whereby students will be assigned an advisor in the Computer Science Department and also an advisor in the Secondary Education Department. The proposers believe that this will ensure that students are effectively mentored through the content and pedagogical components of the minor.

Assessment Plan

Note that that the guidelines do not explicitly include a section for assessment. Therefore, the program proposer was very kindly provided us with additional information, which is discussed here and provided in Appendix A.

The primary assessment will be focused on the culminating capstone project administered during the final course in the CSE minor (EDSC 237 – Teaching Computer Science in Secondary School). The coordinator of the CSE minor will collect and analyze scores from the EDSC 237 capstone project to identify strengths, challenges, and emerging patterns that may indicate revision to the capstone project and possibly the minor's course sequence. Other assessments will include data collection on the number of students enrolling in the minor as well as their years of entry and completion. The coordinator will collect and analyze program data to assess overall program viability.

Staffing Plan, Resource Requirements, and Budget

Given that 5 of the 6 required courses proposed for the minor are existing computer science courses, no changes in staff assignments are anticipated for computer science faculty. One new course (EDSC 237 - Teaching Computer Science in Secondary School) has been developed and a faculty member will need to be assigned to teach this course as part of their load or an adjunct will need to be hired.

No new costs are anticipated for the first year. As previously discussed, all computer science courses are currently offered through the Computer Science Department. If there is a great demand for this minor, additional sections of the required courses may need to be added to accommodate the demand. It is anticipated that the first cohort of students enrolled in the minor will not enroll in EDSC 237 until Spring 2020 which will necessitate either a current faculty member teaching this course on load or hiring an adjunct. The cost of this new course could be offset by an enrollment of at least 10 students (in the CSE minor or concentration) enrolled in the methods course.

Evidence of Support

The proposal has the support of Deans Schadler (CEMS) and Thomas (CESS), Chairs Skalka (CS) and Giangreco (DOE) and Peter Drescher, State Director of Education Technology with the VT AOE. Communication is frequent between the 2 colleges as evidenced by their bi-weekly meetings and successful collaboration in creating this proposal.

Summary

It is the opinion of the subcommittee that the CAC should vote to support the Minor in Computer Science Education submitted by the Departments of Education (College of Education and Social Services) and Computer Science (College of Engineering and Mathematical Sciences). No concerns were raised during the public comment period, and additional clarifying questions raised by the subcommittee were satisfactorily answered by the department – see Appendix A.

Appendix A - Communication between CAC Subcommittee and Proposers

To: Faculty Senate CAC
From: Regina Toolin, Associate Professor DOE
Date: February 4, 2019

After reading your proposal for a new Minor in Computer Science Education, we have several clarifying questions that we anticipate that members of the Faculty Senate Curriculum Affairs Committee (CAC) might ask when we vote on your proposal. In order to present your proposal in the best possible light, could you provide us with clarification on the following points:

*** Could you clarify the particular design rationale for the lockstep series of CS courses (008, 021, 087, 110, and 121), instead of the wider and more flexible range of choices in the traditional CS minor?**

All courses in the Computer Science Education minor are aligned to the Vermont Agency of Education (VT AOE) Teacher Certification Endorsement Standards. See pp. ***80-81*** *in VT Rules Governing the Licensing of Educators and the Preparation of Educational Professionals for Computer Science Education: https://education.vermont.gov/sites/aoe/files/documents/Rules%20Governing%20the%20Licensing%20of%20Educators_8-21-18.pdf).*

Faculty from the Departments of Computer Science and Education collaborated to align the VT AOE CS Endorsement Standards with CS content courses that are currently offered in the CS Department and determine gaps that exist with respect to these standards. The course, EDSC 237 Teaching Computer Science in Secondary School, was developed to address the curriculum and instruction components required by the endorsement standards. In addition, staff from the VT AOE attended some of these meetings to guide us in this alignment process. These AOE staff included Terry Reilly, Pre-service Educator Quality Programs Coordinator and Peter Drescher, State Director of Educational Technology. Both Terry and Peter have made themselves available to consult with the CSE team on a regular basis.

*** Is one education course out of six sufficient to consider the proposed minor a "computer science education" minor? How is this different than taking the regular CS minor plus EDSC 216 / EDSC 237?**

See comment above. A comparison of the CSE and CS minors demonstrates a significant difference in the content coursework. The CSE minor does not allow flexibility in coursework in order to meet the required VT AOE Endorsement Standards. In addition, for non-education majors, the EDSC 216 and EDSC 237 course sequence will be sufficient to learn fundamental principles of curriculum, instruction and assessment in computer science that may be applied to a variety of fields inside and outside of education. For education majors interested in this minor, students will take a total of 40 credits in education (EDTE 001, EDSP 005, EDSC 011, EDSC 207, EDSC 209, EDSC 215, EDSC 226, EDSC 230, ***EDSC 216 and EDSC 237****).*

*** Beyond EDSC 216, are there any other pre-requisites that have not been explicitly listed? In particular, given that EDSC 216 is a 2xx level class, are there additional 1xx and/or 0xx level prerequisites that non-Education majors will need to take?**

No, as described previously, EDSC 216 is an introduction to principles of curriculum, instruction, and assessment that will be sufficient for non-education majors to progress through and be successful in EDSC 237.

*** Who will develop and who will teach the new EDSC 237 course? Will this be a CEMS faculty, a CESS faculty, or both?**

EDSC 237 has been developed by faculty in Secondary Education and Computer Science (see attached). The course will be taught primarily by a secondary education faculty member with opportunities for Computer Science faculty to consult and serve as guest speakers for the course.

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From: Regina Toolin <Regina.Toolin@uvm.edu>
Sent: Tuesday, February 26, 2019 6:19 PM
To: Monsen, Erik <emonsen@bsad.uvm.edu>
Cc: Laura Almstead <Laura.Almstead@uvm.edu>; Jennifer Sisk <Jennifer.Sisk@uvm.edu>
Subject: Re: CAC Review Subcommittee - Questions for Proposed Computer Science Education Minor

Dear Erik,

Attached is the advisement plan for the computer science minor. With respect to student advisement, our plan is to establish a co-advisor model whereby students will be assigned an advisor from both the Computer Science Department and Secondary Education Department in order to effectively mentor them through the content and pedagogical components of the minor.

Best,

Regina

Computer Science Education (CSE) Minor
Assessment Plan
February 26, 2019

I. CSE Program Outcomes:

Upon completion of the Computer Science Education Minor students will be able to:

1. Plan and implement instruction that demonstrates knowledge of computer science principles and practices and allows secondary students to use computer science in problem-solving and decision-making situations.
2. Keep current with the use of technology in education and issues related to legal and ethical use of technology resources.
3. Design and implement activities which reinforce verbal and written technical communication skills central to computer science.
4. Use the basic steps in algorithmic problem-solving to design solutions.
5. Use effective management strategies for teaching computer science.
6. Use appropriate instructional strategies for teaching computer science.

(From: VT Agency of Education Endorsement Standards – August 2018)

II. CSE Assessment Plan

The primary assessment for the CSE minor will be a culminating capstone project administered during the final course in the CSE minor – EDSC 237 Teaching Computer Science in Secondary School. Other assessments will include data collection on the number of students enrolling in the minor as well as year of entry and completion of the minor. The coordinator of the CSE minor will collect and analyze scores from the EDSC 237 capstone project to identify strengths, challenges, and emerging patterns that may indicate revision to the capstone project and possibly the minor course sequence. In addition, the coordinator will collect and analyze program data to assess overall program viability.

EDSC 237 – Teaching Computer Science in Secondary School - Computer Science Resource Portfolio

Introduction and Goals

As a teacher of computer science, it is essential that you gain experience in developing unit and lesson plans to reflect a broad range of activities and assessments for teaching computer science. The CSE resource portfolio that you design will not necessarily correspond to a specific time frame, but rather to a specific topic that pertains to the MS/HS computer science curriculum. The overall goal is to develop lesson plans for a given topic that demonstrate various dimensions of exemplary computer science instruction that we have been learning about throughout the semester. The CSE Resource Portfolio should include the following components:

1. Narrative explaining overall the rationale, background and goals (EU's and EQ's) of the instructional sequence. Please demonstrate how your portfolio connects to the CSTA computer science standards.
2. Curriculum Map – outlining all lessons, projects and assessments
3. Curriculum Resources – a list of all the resources utilized in the portfolio design
4. Instructional strategies/lesson plans to include a total of 6 lesson plans (utilizing the secondary lesson plan template)
   - Inquiry-based lesson – See class readings and notes
   - Project-based/Place-based inquiry – See class readings and notes
   - CS based lesson; historical lesson
   - Societal issue to elicit students' values and to develop a plan of action
   - Integrated lesson that demonstrates the integration of instructional technology and one of the following subjects: mathematics, science, English or social studies.
5. Assessment and Grading
   - Diagnostic assessment given at the beginning of the unit plan.
   - Traditional assessment (e.g. unit exam)
   - Performance-based or project-based assessment with rubrics
6. Summary and Reflection of the Portfolio Development Process

Note: You should write no fewer than 6 lesson plans (multiple day plans including labs), each of which may correspond to multiple days of instruction. Be sure to utilize the lesson plan format that was discussed in your program (middle and secondary). As always, be sure to include references to *CSTA Standards,* other appropriate standards and other computer science texts and resources.

Computer Science Resource Portfolio Rubric

Performance Indicator	**Meets Standard (3 pts)**	**Approaches Standard (2pts)**	**Below Standard (1 pt.)**
Narrative explaining overall goals and connections to CSTA standards.	Clear and grammatically correct narrative connecting rationale to CSTA standards.	Clear rationale and references to CSTA, but no strong connection between the two.	Clear rationale and only a listing of the relevant CSTA standards.
Traditional lesson	Each lesson appropriately formatted and detailed.	Lesson plan lacking in a few minor details or formatting.	Lesson plan lacking in many details or formatting.
Inquiry-based lesson	Lesson appropriately formatted and detailed.	Lesson plan lacking in detail or formatting.	Lessons lacking in detail or formatting.
Project-based/Placebased lesson	Each lesson appropriately formatted and detailed.	Lesson plan lacking in a few minor details or formatting.	Lesson plan lacking in many details or formatting.
Mathematics as a complement to conceptual understanding.	Mathematics used to understand and reinforce content within lessons.	Mathematics used at the end of lessons to reinforce concepts.	Mathematics used only as an add-on to the content of the unit plan.
Effective use of instructional technology.	Technology used to engage individuals and whole class.	Technology used to engage whole class.	Technology used only to present info to whole class.
Diagnostic assessment for beginning of unit.	Clear objectives and grading guidelines.	Clear objectives, but somewhat vague on grading.	General description of goals, but no grading guidelines.
Performance-based assessment.	Clear objectives and grading guidelines provided.	Clear objectives for each student, but somewhat vague on grading.	General description of goals of assessment, but no grading guidelines.
CS-based lesson; historical	Clear CS objectives and mechanisms for student assessment.	Clear CS objectives, but vague criteria for assessment.	Clear CS objectives, but no description of how to assess students.
Societal issue related to CS that elicits students' values and requires a plan of action.	Each lesson appropriately formatted and detailed.	Lesson plan lacking in a few minor details or formatting.	Lesson plan lacking in many details or formatting.
Reflection of curriculum process.	In-depth and insightful reflection.	Reflection evident and acceptable	Reflection evident but lacking in detail and insight.

Comments: **Resource Portfolio Score :**

November 21, 2018

TO: Brenda Solomon, Chair CESS Curricular Affairs Committee

FROM: Regina Toolin, Associate Professor, DOE

RE: BS in Secondary Education - **New Computer Science Concentration**

Faculty in Department of Education and Computer Science have been collaborating to develop a new Computer Science concentration in Secondary Education (DOE) for students seeking initial certification to teach computer science in grades 7-12 in Vermont. The long-term goal is to educate the next generation of computer science teachers (grades 7-12) in Vermont and across New England that will encourage and support diverse groups of students as they become computer science literate and consider computer science careers.

What follows in this memo is the requested information from the CESS Curricular Affairs Committee for approval of the Computer Science Concentration in Secondary Education.

I. Description of Bachelor of Science in Secondary Education Curriculum

Bachelor of Science in Secondary Education. The Secondary Education program prepares teachers to work with students with diverse needs in public school classrooms in grades 7–12. The curriculum includes general education, a content area concentration (ranging from thirty to fifty-seven credits depending on the concentration) and a minor (strongly encouraged but not required), a professional education component, and electives. Current Secondary Education concentrations include the following: English, Foreign Language (French, German, Latin, Spanish), Mathematics, Science (Biology, Chemistry, Earth Science, Physics) and Social Studies.

A minimum of 120 approved semester credits is required for the degree. Professional coursework is offered throughout the program, alongside general education and concentration and minor requirements. In addition to the University requirements, the general education courses must include the following: 3 credits each in the Humanities, Natural Science, and Social Studies.

Students begin the professional education component of their Secondary Education program when they enter UVM. During the first two years, course work focuses on general education and academic concentration or minor requirements. In addition, students take several education courses that build the foundation for further study in Secondary Education. The Secondary Education Program includes three (3) distinct phases of coursework that are described below.

Phase 1: Exploring learners' needs and the school context.
Coursework:
EDTE 001, EDTE 056, EDFS 002, EDSP 005, EDSC 011, EDSC 207. (EDTE 056 fulfills D1 requirement and EDSP 005 fulfills D2 requirement).

At the end of this sequence, if a student has a 2.75 overall GPA, a 2.50 GPA or higher in the content area concentration, a grade of B or better in all courses with an EDXX prefix, passing scores on the PRAXIS Core Test or meet state-approved waiver requirements, favorable reviews from faculty teaching EDSC 011 and EDSC 207, and resolved all Student Support Team concerns (if applicable), then a student will be able to continue in the Secondary Education program. Should a student fail to meet one or more program benchmarks, a student has the option of submitting a formal request to continue in the program.

Following the introductory phase, students begin the next series of professional courses. During this phase, students will continue taking course work in their academic concentration, with the goal of having courses completed prior to Phase 3.

Phase 2: Exploring school context and curriculum, instruction and assessment.
Coursework: EDSC 209, EDSC 215, and EDSC 216. Subject methods courses may be taken in Phase 2 or 3, depending on the student's academic plan.

At the end of this sequence, if a student has a 3.00 overall GPA, a 2.75 GPA or higher in the content area concentration, a grade of B or better in all courses with an EDXX prefix, meet speech competence requirement, favorable reviews from faculty teaching in EDSC 209, EDSC 215, and EDSC 216, resolved all Student Support Team concerns (if applicable), then a student will be eligible to apply formally for a student teaching placement in the Secondary Education program. Should a student fail to meet one or more of these program benchmarks, a student has the option of submitting a formal request to continue in the program.

Phase 3: Full Semester Student Teaching Experience.
Coursework: EDSC 226, EDSC 230 (Subject specific methods course may be taken during this semester if not taken previously). Students must complete a full-time, semester-long internship. Students must complete and submit a portfolio that documents competence with program and state licensure requirements.

Speech Competence: All students must demonstrate competence in communication by successfully completing a speech course for university credit OR successfully complete a theatre course for university credit OR Earn a letter of support regarding speech competence in EDSC 215

Table 1. Bachelor of Science in Secondary Education Program Requirements

University General Education Requirements	
Diversity	6
D1 - Race and Racism in the US (EDTE 056)	
D2 - Diversity of Human Experience (EDSP 005)	
Writing and Information Literacy	3

ENGS 001, HCOL 85, or TAP course		
Sustainability - Any course with the "SU" designation		3
Quantitative Reasoning - Any course with the "QR" designation		3
CESS General Education Requirements		
Humanities		3
ASL, Foreign Language, or any course with the subject prefix of ASL, PHIL, REL		
Natural Science		3
Any course with the subject prefix of BIOL, PHYS, CHEM, ENVS, ENSC, NFS, GEOL. Or GEOG 040, NFS 043		
Social Science		3
Any course with the subject prefix POLS, PSYS, GEOG, HST, ANTH, SOC, or SWSS 002, HDFS 005		
Professional Requirements		
Phase 1		
EDTE 001	Teaching to Make a Difference	3
EDSP 005	D2:Iss Aff Persons W/Disabil	3
EDFS 002	School and Society	3
EDTE 056	D1:Lang Policy Issues, Race & Sch	3
EDSC 011	Ed Tech in Sec Ed Classroom	3
EDSC 207	Development: Theory & Application	4
Praxis Core Requirement		
Phase 2		
EDSC 209	Practicum in Teaching	4
EDSC 216	Curr,Instr&Assmt Sec Schl Tchr	3
EDSC 215	Reading in Secondary Schools [1]	4
Phase 3		
Special Methods (Choose one of the options below) [2]		
EDSC 225	Tchg Soc Studies in Sec Schls	
or EDSC 227	Tchng Science in Sec Schls	
or EDSC 240	Tchg English in Sec Schls	
or EDSC 257	Tchg Math in Sec Schls	

or EDSC 259	Tchg Foreign Lang in Sec Schls	
EDSC 226	Teaching Internship	12
EDSC 230	Teaching for Results	3
Praxis II Subject Tests [3]		

[1] Public speaking: Students are required to demonstrate competence prior to student teaching. Completed in EDSC 215.

[2] Students with a concentration in Math need 6 credits in Math Special Methods.

[3] Official scores needs to be sent to UVM

II. Rationale for New Computer Science Concentration in Secondary Education

Computing represents two-thirds of projected new STEM jobs in the US, but less than 3% of college students earn a Computer Science (CS) degree and only 8% of STEM graduates major in Computer Science. (https://csedweek.org/resource_kit/blurbs). Computing and information technologies have driven many aspects of Vermont's economic growth, as evidenced by the presence of Dealer.Com, NRG Systems, Competitive Computing, the Vermont Technology Alliance, and over 200 other related companies statewide. Vermont's IT future is bright and job growth is projected to remain strong over the next decade; however, there is a disparity between CS employment opportunities and the CS learning opportunities available for students in the state. Vermont's minimal adoption of computer science education standards places it in the bottom tier in the US (with 9 other states). A joint study by the Association for Computing Machinery (ACM) and the Computer Science Teachers Association (CSTA) notes that these nine states give no attention to Level II or Level III standards at the secondary level and have adopted less than 10% of CS concepts overall (Wilson et al., 2010). Further, only 8 high schools in VT offer an Advanced Placement (AP) Computer Science Principles course and only 26 teachers (or less than 1%) are licensed to teach CS. A recent statewide survey conducted by Vermont Agency of Education (VT AOE) revealed that over 600 teachers in Vermont were interested in furthering their knowledge of computer science via professional learning and coursework (VT AOE, 2018). In 2017, 62 students in VT took the AP CS Principles test with 48 students earning a score of 3 or better on a 5-point scale (College Board, 2017). Opportunities for diverse students to engage in CS learning in VT have also been limited as only 3 Latinx and 8 Asian students took the AP CS Principles test in 2017. No African American or Native American students in VT took the AP CS Principles test during this period (College Board, 2017). Nationally, 22 % of AP CS students are women and 13% are African American or Latinx (https://csedweek.org/resource_kit/blurbs).

A joint initiative between CESS, CEMS, and the VT AOE to create a Computer Science Education Collaborative (CSEC) will address these deficiencies and gaps through the development of ***a new Computer Science Concentration in Secondary Education (DOE).*** The fact that Vermont is a small state affords us the ability to readily connect with teachers, administrators, VT AOE staff, legislators and businesses for STEM education initiatives and partnerships. UVM is well situated to advance the new CS concentration following the approval

of **Act 77** legislation that supports the development of personalized learning plans and flexible pathways to graduation for all students. The new CS concentration will build on the legislature's commitment to support programming to increase educational opportunities, particularly for those students who have traditionally been underserved in CS education and careers. In addition, the creation of the new concentration aligns with the state's demonstrated interest in promoting STEM education -- a strategic goal of UVM, CESS, CEMS, AOE, business leaders, and the state government.

Of central significance is the collaboration between UVM's Computer Science and Education departments in program design and implementation. This alliance provides an opportunity for innovative programming, rich dialogue, and collaborative teaching and research between faculty in both departments. This will also provide an opportunity for each department to update and expand its curriculum to ensure that all students who graduate with a BS in Secondary Education with a CS concentration will have a deep understanding of computational thinking and its significance in transforming education, as well as practical and meaningful ways to integrate CS into their teaching practice (Barr & Stephenson, 2011).

The long-term goal of the Computer Science Concentration in Secondary Education is to educate the next generation of computer science teachers (grades 7-12) in Vermont and across New England that will encourage and support diverse groups of students as they become computer science literate and consider computer science careers.

III. Computer Science Education Concentration Requirements (including a list of the required and elective courses)

Students enrolled in the Computer Science Education concentration will complete **ALL** 3 phases of the secondary education program including university general education, secondary education general education, and professional education requirements. A list of all of the Secondary Education Program requirements is found on pp. 2-3 of this memo. In addition, Computer Science Education students will complete the following content specific courses for the Computer Science Concentration in Secondary Education:

Table 2. Secondary Education Computer Science Education Concentration Requirements

CS 008: Introduction to Web Design – 3 credits
CS 021: Introductory Programming – 3 credits
CS 064: Discrete Structures – 3 credits
CS 087: Introduction to Data Science – 3 credits
CS 110: Intermediate Programming - 4 credits (Prerequisite: CS 021)
CS 121: Computer Organization – 3 credits (Prerequisite: CS 110)
CS 124: Data Structures and Algorithms (Prerequisites: Math 021, CS 064, CS 110) – 3 credits

CS 166: Cybersecurity Principles – 3 credits
CS 292: Senior Seminar – 1 credit
Math 021 – 4 credits
CS 091 – Instructing in Computer Science (Strongly recommended but not required).
In addition, all CSE students will complete a teaching methods course:
EDSC 2XX - Teaching Computer Science in Secondary School – 3 credits (in development)

All of the computer science and mathematics courses listed as requirements for the Computer Science Education concentration are currently offered through the Computer Science and Mathematics departments. The only new required course that needs to be developed is Teaching Computer Science in Secondary School (currently in development).

IV. Evidence of communication with other units affected by the change

Please see attached letters of support from CESS, CEMS and VT Agency of Education administrators:

CESS – Michael Giangreco, Interim Chair, DOE

CESS - Scott Thomas, CESS Dean (pending – 11/26/18)

CEMS – Chair, Computer Science Department

CEMS - Linda Schadler, CEMS Dean

VT Agency of Education Endorsement - Peter Drescher

MEMO

To: Curricular Affairs Committee of the Faculty Senate
From: Amy Seidl Ph.D. and Stephen Everse, Ph.D.
Date: March 1, 2019
Re: Approval of a Proposal for a Significantly Revised Certificate in Gerontology

---

We have reviewed the proposal for a significantly revised Continuing Education Academic Certificate in Geronotology submitted by the Human Development and Family Studies Program (HDFS) within the Department of Leadership and Developmental Science (DLDS) in the College of Education and Social Sciences. We recommend approval of this academic certificate and its start date of Fall 2019. Jacqueline Weinstock will be the Program Director.

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

Program Description and Rationale

A significantly revised Certificate in Gerontology was submitted. While initially offered through Continuing Education (now Continuing and Distance Education), the Certificate has been dormant for 10 years due to courses not being offered. This proposal represents a highly revised academic endeavor, but is officially a revision to an existing program.

The Certificate in Gerontology will utilize existing courses and add one new course to cultivate a marketable skill for graduates. The impetus of the Certificate is to address a growing need for trained professionals who can facilitate positive aging among an increasing population of elders. Graduates will have foundational knowledge in the biology, psychology, and sociology of aging; will understand the practical and ethical issues critical to an aging population; will understand the effectiveness of social services and other resources available to the elder community; and will be positioned to work with elders whether they are clients, their own family members or their loved ones. The Certificate has been revised based on standards and guidelines put out by the Association for Gerontology in Higher Education.

Justification and Evidence for Demand

The human population is aging and Vermont is currently the second oldest state in the nation (18.7% of Vermonters are 65 or older). By 2032, almost one in four Vermonters will be 65 or older. Moreover, the demand for professionals trained in Gerontology exceeds the number of trained individuals according to labor statistics. In anticipation of even greater demand for individuals who can facilitate positive aging, especially of elders who live long and often healthy lives, it behooves the University to offer a certificate whereby health care professionals and interested lay people are educated in the multidisciplinary elements of aging in the 21st Century. The Certificate is expected to be of interest to professionals in health and social science fields; individuals seeking entry level positions working with elders including care facilities, senior centers, housing, and elder support organizations; and adults interested in understanding and preparing their own or others aging.

Relationship to Existing Programs

The Department of Sociology (CAS) offers a Minor and Concentration in Gerontology. Weinstock has consulted closely with Dale Jaffe, who directs the minor, and together they have revised the Certificate so as to support all academic tracks in Gerontology as offered in Sociology. Revisions to the Certificate also allow the HDFS Program (CESS) to offer its majors a concentration in Gerontology.

Curriculum

A total of either 15 credits is required for this Certificate. Nine credit hours are required in foundational coursework plus 6 elective credits (**3 credits of which must be internship credits if students do not have prior experience working with elders**).

Required Courses

Number	Name	Credit
HDFS/SOC 020*	Aging: Change and Adaptation	3.0
SOC 120	Aging in Modern Society	3.0
HLTH 100 OR HDFS 221	Biology of Aging Psychology of Aging	3.0

Electives (3 credits selected from the courses below)

Number	Name	Credit
HDFS 190	Internship	3.0
HLTH 100 OR HDFS 221**	Biology of Aging (if not previously taken) Psychology of Aging (if not previously taken)	3.0
ANTH 189	Aging in Cross-Cultural Perspectives	3.0
NH 120	Health Care Ethics	3.0
NFS 143	Nutrition in the Life Cycle	3.0
SOC 154	Dying, Death and Bereavement	3.0
SOC 224	Health Care and Aging	3.0

Note: *HDFS/SOC 020 serves as the prerequisite for SOC 120 and HDFS 221. Prerequisites for HTHL 100 include BIOL 004, ANPS 019 and ANPS 020 or Instructor Permission. ** HDFS 221 is a new course developed for the Certificate.

Admission Requirements and Process

The program is open to any interested qualified CDE students.

Anticipated Enrollment and Impact on Current Programs

The proposers anticipate an estimated 3-5 CDE students to enroll each year during the first 5 years. This is above and beyond increasing enrollments in HDFS 020 and HDFS 221.

Advising

Jacqueline Weinstock will serve as Program Director for this Certificate and serve as the academic advisor for students. This will be part of Weinstock's service in HDFS. Up-front advising, e.g., students expressing interest, will be done by CDE.

Evaluation and Assessment

Evaluation plan of the courses and students' success in them was elaborated but no specific assessment plan was included.

Staffing Plan, Resource Requirements, and Budget

No new faculty appointments are necessary to support this Certificate although changes to Weinstock's workload will ensue once she has advised 8-10 students in the internship course, HDFS 190. All other required courses are approved and have capacity and support, as indicated in letters.

No additional demands are expected of the library or its resources. The courses offered for the Certificate will be offered for undergraduates and additional spaces are expected to be minimal. CDE will meet administrative needs of the Certificate and no additional costs to DLDS are expected.

Evidence of Support

Letters of support were extensive for this Certificate and include HDFS Program Coordinator, DLDS Chair, Dept. of Sociology Chair, Center on Aging Director, CESS Dean' Office, CDE Dean's Office, CAS Dean's Office and CNHS Dean's Office. Additional letters of support for courses were included. During the comment period, CESS Curricular Committee submitted a letter of support as well.

Summary

This Certificate in Gerontology revitalizes the current, but dormant, certificate by:

a) offering HDFS/SOC 020 after a 5-year hiatus;
b) utilizing existing courses across departments and programs;
c) developing a new course, HDFS 221 to expand offerings;
d) aligning the Certificate curriculum and experience with industry standards.

Its goal to meet the demand for professionals trained in gerontology and to position its graduate to work directly with elders, seems entirely achievable and much needed. We recommend approval of this certificate program.

February 25, 2019

To: the Curricular Affairs Committee of the Faculty Senate

From: Susan Munkres, Director, Office of Community-University Partnerships & Service-Learning

Re: Proposal to revise the Service-Learning (SL) course designation

Overview

We propose to revise the Service-Learning (SL) course designation to reflect the following:

1) Our strength in community-engaged teaching at UVM
2) Developments in the field of service-learning and civic engagement
3) Increased attention to assessment, esp. of student learning outcomes

The proposed change is to a "dual designation" which will consist of a service-learning (SL) designation and a civic learning (CL) designation. This change will simultaneously raise the standards expected of SL courses and expand opportunities and incentives for community-engaged pedagogy overall. We will accompany this change with faculty development activities designed to support newly-designated CL courses as pathways into rigorous service-learning, undergraduate community-based research, and faculty community-engaged scholarship. We are proposing to the Provost that our name be changed to the "Office of Community-Engaged Learning", to reflect and augment this transition.

Rationale

For a number of reasons, we are proposing both a new designation and revised criteria for the SL designation. The proposed new designation comes from expressed needs of faculty members, who told us that they were teaching courses specifically intended to prepare students for strong service-learning later in the curriculum, but there was no method for recognizing these courses. Other faculty told us that they wanted to create community-engaged experiences in the first or second-year, but that they believed their students were not yet prepared to offer work or service of a caliber that would benefit community partners. Thus, they were teaching courses that introduced students to community issues or to civic participation or sending them "out in the community" without working directly with community partners.

We came to see that having only one designation of service-learning made it difficult for CUPS staff to support faculty who wanted to build community-engaged work into the curriculum, in ways that would not burden community partners and that would prepare students to be more effective when they did service-learning.

In addition to hearing a need for recognizing and supporting community-engaged courses that were not service-learning, we saw in the field of service-learning and civic engagement, an increased expectation of rigorous attention to community partner benefit (Welch and Saltmarsh 2016); courses should address community needs, *as defined by the community partner*. We also saw increased attention to assessment and a focus on articulating the intended learning outcomes of the service-learning portion of courses. Here at UVM, under the current designation criteria, courses can be designated with even a very small service-learning project. Additionally, we found that service-learning was not having the impacts we would expect on students, based on our most recent NSSE results. We believed it would make sense to concurrently make the service-learning designation more rigorous. The new designation criteria have higher expectations for the following elements: the community need, the course learning goals, and the scope of the service-learning component. We also intend to revise the process, requiring faculty to share their syllabi in addition to reporting their community partners.

To summarize, the proposed two course designations are intended to both incentivize and recognize the broad range of community-engaged and preparatory coursework being offered, and to make service-learning a more rigorous designation. We believe this will benefit faculty by expanding the number of courses that we can support through consultation, project implementation grants and other resources. We think it will benefit community partners as we help faculty think about how to better prepare our students for service-learning and hold service-learning to a more rigorous standard. Students will be able to find community-engaged or civically-oriented courses more easily, and will hopefully be better prepared for rigorous service-learning experiences, facilitating deeper learning. As an institution, the new CL designation will highlight the breadth and variety of academic community engagement, and a more rigorous SL designation will likely demonstrate stronger effects on our students.

Designation Process

Courses will continue to be designated by the re-named CUPS Office in consultation with the CUPS Advisory Committee, and under the direction of the Associate Provost for Academic Affairs. The Civic Learning (CL) designation will be encouraged, but

not required. The Service-Learning (SL) designation will remain required. Faculty will now be expected to submit a syllabus for their service-learning courses, and to report the community partners of their courses. The Registrar has agreed to designate both CL and SL courses in the online Schedule of Courses.

Designation Criteria

The proposed designation criteria are described in the table below. Please note that the types of Civic Learning courses listed in the table are not separate designations, rather are intended to help faculty think about what kind of role the course is filling in preparing students or introducing them to communities.

Designation	Types	Description	Criteria
Civic Learning (CL)	Civic Foundations	Explicitly prepares students for civic or community engagement. Covers reflection, power/ privilege, modes of social change, and/or active citizenship.	Credit-bearing course that • addresses the common good, social inequality and/or environmental sustainability. • Includes student meaning-making and analysis of the civic/community portions of the course. • Connects civic/community portions of course to course learning goals. • Assessment and academic credit are based on demonstration of learning and caliber of work (as opposed to completion of service or project tasks).
	Community Exploration	Introduces students to specific communities	
	Community Case	Introduces students to a local / place-based case of broader civic, social or environmental issues	
	Community-Embedded	Takes place off-campus and includes significant interaction with community members or time in the community	
	Small-Scale Service	Includes a day of service, or small project.	
Service-Learning (SL)	Direct & Indirect Service	Students engage directly with organizations' served populations or provide other needed services	In addition to above: • Includes a significant community-engaged component • The component responds to community need(s), as identified by the community partner • Engages students' academic competencies to meet the community need and connects this engagement to the course learning goals. • Addresses the role of the discipline in relationship to the common good, social inequality, and/or environmental sustainability.
	Project / Consultant Model	Students produce deliverables for a community partner (also called problem-based SL)	
	Community-Based Research	Students engage in research driven by a community partner's needs	

Support Letters

- Jane Kolodinsky, Chair, Community Development & Applied Economics, CALS
- Kimberly Wallin, Associate Dean, RSENR
- Kathy Fox, Associate Dean, CALS
- Katie Shepherd, Associate Dean, CESS

All writers are from units with significant numbers of service-learning courses.

From: Jane Kolodinsky
Sent: Thursday, February 28, 2019 2:38 PM
To: Susan Munkres
Cc: Jane Kolodinsky
Subject: Letter of support

From: Jane Kolodinsky, Chair, Department of Community Development & Applied Economics

To: members of the Curricular Affairs Committee

Re: Proposed Revisions to Service-Learning (SL) Designation

I'm writing to express support for the redesignation proposed by the CUPS Office. CDAE is the only department at UVM to specifically require service-learning courses of all students for graduation, and also the only department to intentionally design scaffolded experiences throughout our curriculum that prepare students for upper and capstone-level service-learning. In fact, the need for this two-level designation was first expressed to the CUPS Office by one of our faculty members serving on the CUPS Advisory Committee. This redesignation aligns with the work that we do in CDAE. Further, we support efforts to encourage rigorous service-learning and respectful engagement with community members, as these practices are central to our field. And, we look forward to continuing to partner with CUPS on service learning at UVM.

March 1, 2019

To: the Curricular Affairs Committee of the Faculty Senate

This is a letter supporting the revision of the Service-Learning (SL) course designation to include the designation of Civic Learning (CL). This change will clarify the standards expected of SL courses while expanding the opportunities for community-engaged pedagogy with in Rubenstein School and UVM. As a member of the CUPS advisory board since 2012, this expanded and revised designation is forward looking as it prepares students to engage more deeply and effectively with community partners while increasing the rigor of SL designation. This will benefit the student and community partner experience.

Sincerely,
Kimberly F. Wallin
Research Associate Professor
RSENR Director Graduate Programs

The University of Vermont

To: Laura Olmstead, Chair, Faculty Senate Curricular Affairs

From: Kathy Fox, Associate Dean, College of Arts & Sciences

Date: February 28, 2019

Subject: Proposed CL designation

I write in support of the proposal to create a new course designation "Civic Learning." As an instructor who frequently teaches Service-Learning course, I sometimes find myself conducting projects with students that do not quite meet the bar for S-L but that are otherwise community-engaged, active learning projects. It would be helpful to designate courses as such, for truth in advertising to students, and to attract them to the right courses.

I have long argued that having the S-L designation alone was a bit narrow, as there are otherwise engaged practices that could benefit from a method of distinction. I do not see a downside by having greater clarity in distinguishing types of course offerings

If you have questions, or would like clarification, please contact me at kfox@uvm.edu.

Thanks for your time and consideration, and all your work on the curriculum.

COLLEGE OF ARTS AND SCIENCES
OFFICE OF THE DEAN
438 College Street, Burlington, VT 05405
(802) 656-3344 Student Services
(802) 656-3166 Faculty and Administrative Services

To: Faculty Senate Curricular Affairs Committee

From: Katie Shepherd, Associate Dean for Academic Affairs and Research, College of Education and Social Services

Re: Proposal to revise the Service-Learning (SL) course designation

Date: March 1, 2019

I am writing in support of the proposal from Susan Munkres (CUPS) to revise the Service-Learning (SL) course designation to a "dual designation" that will consist of a Service Learning (SL) designation as well as a Civic learning (CL) designation. The proposal includes a sound rationale for the request and articulates the ways in which the change will raise expectations around service learning, clarify the difference between courses intended to prepare students for service learning and those requiring a more rigorous approach to service learning, and expand opportunities for community-engaged pedagogy. The fact that the proposal describes plans to provide faculty development to support the change strengthens the proposal, as does the evidence provided to show that this change aligns with national trends. Ultimately, the changes will result in an enhanced curriculum in the area of community engagement, encourage greater rigor in courses with the SL designation, and establish a process that will help students and faculty distinguish among the various types of courses being offered.

PROPOSAL

Part 1: Deletion of the Environmental Chemistry focus track

The Environmental Sciences (ENSC) major currently has nine concentrations (listed below). Due to continued low enrollment (< 1% of our majors), we would like to drop one concentration (Environmental Chemistry), and merge some of its courses into an existing concentration that already includes several chemistry options (Environmental Analysis and Assessment).

Current Curriculum

This change in ENSC concentrations does not impact the required prerequisite courses (biology, chemistry, calculus, statistics and geology or plant and soil science) or the core environmental sciences ENSC core courses. In addition to this foundation, students select from among nine concentrations, which currently includes Environmental Chemistry (requirements listed below).

The current list of ENSC concentrations includes:

Agriculture and the Environment: *Impacts of agriculture on the environment and strategies for minimizing environmental degradation*

Conservation Biology and Biodiversity: *Endangered species and ecosystems, and strategies for conserving the diversity of Earth's life forms*

Ecological Design: *Use of ecological systems to improve environmental quality*

Environmental Analysis and Assessment: *Techniques for measuring environmental impacts and managing environmental data*

Environmental Biology: *Ecological and molecular analysis of endangered populations, phenomena affecting biological diversity, the interrelationship of organisms and their environments, and conservation genetics*

Environmental Chemistry: analytical methods for measuring and monitoring air, ground, and water pollutants.

Environmental Geology: *Earth science, geomorphology, and the analysis of ground water*

Global Environmental and Climate Change: *Environmental processes in air, soil, and water*

Water Resources: *Global water supply and human impacts on surface waters*

CURRENT ENVIRONMENTAL CHEMISTRY		
Courses	**credit hrs**	**Title**
CHEM 121	4	Quantitative Analysis
CHEM 221	3	Instrumental Analysis
CHEM 291	4	Undergraduate Research
CHEM 131	3	Inorganic Chemistry
CHEM 161 or 162	3	Quantum Chem or Thermodynamics
CHEM 205	3	Biochem I

Note: 2 semester of organic chemistry (141 & 142) and 2 semesters of Physics) are required

Up to 3 credit sours of undergraduate research or internship may be applied to the concentration

Justification for changes:

The rationale for dropping the Environmental Chemistry concentration is due to low enrollment in this focus track (an average of 2 students per year over the past 5 years) as many ENSC majors take the

additional two courses for a Chemistry minor. A student can't pursue the Environmental Chemistry concentration and a Chemistry minor. The Chair of the Chemistry Department, Prof. Christopher Landry, recommended the Chemistry classes that have the appropriate content focus for inclusion in the revised concentration and his Department supports this proposal.

Part 2: Revision of Environmental Analysis and Assessment focus track

CURRENT ENVIRONMENTAL ANALYSIS & ASSESSMENT

Courses	credit hrs	Title
PBIO 223	3	Foundation of Field Sci
CE 132	3	Environmental Systems Anal
CE 154	2	Environmental Analysis Practices
CE 248	3	Hazardous Waste Management Eng
CE 254	4	Environmental Quant Anal
ENSC 285	3	Hazardous Materials Safety
FOR 146/NR126/GEOG 185	3	Remote Sensing of Nat Resources
MMG 220	3	Environmental Microbiology
NR 143	3	Intro to Geographic Info Sys
PSS 261	3	Soil Morph Classification & Land Use
PSS 264	4	Chemistry of Soil and Water
one of the following:		
CE 150	3	Environmental Engineering
CHEM 121	4	Quantitative Analysis

Up to 3 credit sours of undergraduate research or internship may be applied to the concentration

PROPOSED ENVIRONMENTAL ANALYSIS AND ASSESSMENT

Courses	credit hrs	Title
PBIO 223	3	Foundation of Field Sci
CE 132	3	Environmental Systems Anal
CE 154	2	Environmental Analysis Practices
CE 248	3	Hazardous Waste Management Eng
CE 254	4	Environmental Quant Anal
CHEM 131	*3*	*Inorganic Chemistry*
CHEM 165	*3*	*Introductory Physical Chem*
CHEM 221	*3*	*Instrumental Analysis*
*CHEM 295**	*3*	*Advanced Special Topics **
CHEM 223	3	Mass spectrophotometry
ENSC 285	3	Hazardous Materials Safety
FOR 146/NR126/GEOG 185	3	Remote Sensing of Nat Resources
MMG 220	3	Environmental Microbiology
NR 143	3	Intro to Geographic Info Sys
PSS 261	3	Soil Morph Classification & Land Use
PSS 264	4	Chemistry of Soil and Water

one of the following:		
CE 132	*3*	*Environmental Systems Analysis*
CHEM 121	4	Quantitative Analysis

Up to 3 credit sours of undergraduate research or internship may be applied to the concentration

*The Chemistry Dept is currently going through the course approval process for assigned course numbers and entry in the catalogue. Atmospheric Chemistry (3cr) and Environmental Chemistry (3cr) will be added to this list in place of 295

italics highlights changes

Justification for changes:

The rationale for the revisions to the Environmental Analysis and Assessment concentration is twofold: to bring it into alignment with current course offerings (CE 150 and CE 154 have not been offered for several years) and to broaden the options for students by including more analytical and applied chemistry courses. With the deletion of the environmental chemistry concentration there is a need to include quantitative and applied chemistry courses to a focus track in the ENSC major. Environmental Analysis and Assessment is the obvious choice as here is a need for a concentration that emphasizes quantitative approaches to the analysis of environmental data as well as techniques for collecting this data. It is also a low enrollment focus track (averaging ~3 students per year) so the addition of any ENSC students with an interest in chemistry might bolster this offering. The civil engineering approach to the assessment of environmental data that was covered in CE 150 is currently addressed in part in CE 132. Given the current low enrollment of ENSC students in the Environmental Chemistry concentration, the potential addition of 2 more students to CE 132 should not have an impact. CE 132 is offered every semester and for the past 4 years has had a course capacity of ~18 open seats each semester.

NEW ENSC CATALOG MATERIALS WITHOUT SPECIAL TOPICS COURSES

Changes to Major in Environmental Sciences

rationale: The ENSC major currently includes nine concentrations, in which students take 14-17 credits. Due to low enrollments in the Environmental Chemistry concentration, the proposal is to eliminate that concentration and fold elements of that concentration into the Environmental Analysis and Assessment concentration. This change will also allow these students to pursue the minor in Chemistry, which was not possible with the Environmental Chemistry concentration. The Environmental Analysis and Assessment concentration is also being revised to remove courses that are no longer offered.

new list of ENSC concentrations:

- Agriculture and the Environment: Impacts of agriculture on the environment and strategies for minimizing environmental degradation
- Conservation Biology and Biodiversity: Endangered species and ecosystems, and strategies for
- conserving the diversity of Earth's life forms
- Ecological Design: Use of ecological systems to improve environmental quality
- Environmental Analysis and Assessment: Techniques for measuring environmental impacts and managing environmental data
- Environmental Biology: Ecological and molecular analysis of endangered populations, phenomena affecting biological diversity, the interrelationship of organisms and their environments, and conservation genetics
- ~~Environmental Chemistry: analytical methods for measuring and monitoring air, ground, and water pollutants~~
- Environmental Geology: Earth science, geomorphology, and the analysis of ground water
- Global Environmental and Climate Change: Environmental processes in air, soil, and water
- Water Resources: Global water supply and human impacts on surface waters

new Environmental Analysis and Assessment concentration catalog table (changes in bold):

PBIO 223	Foundation of Field Sci	3
CE 132	Environmental Systems Analysis	3
CE 154	Environmental Analysis Practices	2
CE 248	Hazardous Waste Management Eng	3
CE 254	Environmental Quant Analysis	3
CHEM 131	**Inorganic Chemistry**	**3**
CHEM 165	**Introductory Physical Chemistry**	**3**
CHEM 221	**Instrumental Analysis**	**3**
CHEM 223	**Mass Spectrometry**	**3**
CHEM 227	**Topics in Analytical Chemistry**	**3**
ENSC 285	Hazardous Materials Safety	3
FOR 146/ NR 126/ GEOL 185	Remote Sensing of Nat Resources	3
MMG 220	Environmental Microbiology	3
NR 143	Intro to Geographic Info Systems	3
PSS 261	Soil Morph Classification & Land Use	3
PSS 264	Chemistry of Soil Water	4
CE 132 OR CHEM 121	**Environmental Systems Analysis** OR Quantitative Analysis	3-4
Up to 3 credit hours of undergraduate research may be applied to the concentration.		

Additional change to catalog table: The catalog table for the ENSC major indicates that PHYS 011 & PHYS 012 or PHYS 051 & PHYS 052 are required for the Environmental Chemistry concentration; that section of the table will be removed.

Nicole Phelps

From: Thomas Vogelmann
Sent: Wednesday, January 9, 2019 1:30 PM
To: Nicole Phelps
Cc: Don Ross
Subject: CALS approval of changes in ENSC Concentrations

Nicole,

The CALS faculty recently approved a change to the ENSC concentrations—dropping Environmental Chemistry and adding some courses to Environmental Analysis and Assessment. I understand that these changes have also been approved by RSENR and CAS and that the CAS Curriculum Committee has volunteered to send the paperwork onto the University Curriculum Committee. They apparently need a letter or a memo from each dean approving or supporting these changes.

I am indicating though this communication that I approve the changes to the ENSC concentrations. Please let me know if you need any additional information. Thanks for your assistance.

Thomas Vogelmann
Dean, College of Agriculture and Life Sciences
Director, Vermont Agricultural Experiment Station
Professor Plant Biology
University of Vermont
(802)-656-0321

The University of Vermont

December 4, 2018

Dear CAS Curriculum Committee,

This letter is to offer my support for proposed revisions of the Environmental Sciences major, removing the concentration in Environmental Chemistry and offering additional opportunities to study Chemistry within the Environmental Analysis and Assessment concentration. Given the very limited student interest in the Environmental Sciences concentration among current and recent ENSC students pursuing the B.S., this would align the major to better reflect where likely future enrollments will be. Many ENSC students interested in environmental chemical analysis are currently being served by completing a Chemistry minor; their ability to pursue those topics in an academically rigorous way, therefore, will continue. At the same time, by expanding the offerings of Chemistry courses within the Environmental Analysis and Assessment concentration, students within a more popular concentration will then be encouraged to incorporate courses in quantitative and applied chemistry.

I am in full support of these proposed changes; please let me know if you have any questions about this letter of support.

Sincerely,

William Falls
Dean
College of Arts and Sciences

COLLEGE OF ARTS AND SCIENCES
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438 College Street, Burlington, VT 05405
(802) 656-3344 Student Services
(802) 656-3166 Faculty and Administrative Services

Nicole Phelps

From: Nancy Mathews
Sent: Tuesday, January 15, 2019 10:53 AM
To: Nicole Phelps
Cc: Jennifer Pontius; Walter Kuentzel
Subject: RSENR approves ENSC curriculum revision proposal

Dear Nicole,

Today the RSENR faculty approved the deletion of the Environmental Science concentration in Environmental Chemistry, and modification to the Environmental Analysis and Assessment concentration. This approval followed a consensus of our Curriculum Committee and a seconded motion presented to the full faculty. I also am in support of these changes.

Thank you for moving this proposal forward to the Senate.

Sincerely,

Nancy

Nancy E. Mathews
Dean and Professor
Rubenstein School of Environment and
Natural Resources
University of Vermont
220 Aiken Center, 81 Carrigan Drive
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The University of Vermont

Office of the Provost
and Senior Vice President

TO: Academic Deans
FROM: Brian Reed, Associate Provost for Teaching and Learning
DATE: February 14, 2019
SUBJECT: Enrollment Demand Analysis for Proposed New Academic Programs

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I am writing to announce a new **Enrollment Demand Analysis** available to academic units considering the development of a new program. The purpose of this service is to assist in the development of strong, viable program proposals aligned with student demand.

Rationale:
Section 9 of the Faculty Senate's application for proposed new academic programs asks the sponsoring unit to provide evidence of demand or need for the program. The departments/colleges provide this information to the best of their ability, but frequently the evidence lacks strong market analysis, with regional and national perspectives. There are experts on campus who can provide such analysis and perspective to inform and strengthen proposals. Stacey Kostell, Vice President for Enrollment Management has access to external resources that can help assess demand and competition; Amanda Waite, Director of Creative Communications, can provide naming and marketing strategies; and Ryan Hargraves, Director of Admissions, can provide insights on the areas of study and types of programs that prospective students are interested in. Such information can strengthen proposed new program proposals, and may also help the units decide to abandon paths with little promise, thereby saving time, energy, and resources that can be directed elsewhere. A written marketing analysis submitted as an appendix to a new program proposal will help the sponsoring unit address Section 9 thoroughly.

The Service:
Effective immediately, we are initiating an Enrollment Demand Analysis service to inform the development of potential new academic programs. You can request an Enrollment Demand Analysis as ideas for new programs emerge within your unit by contacting the Vice President for Enrollment Management, Stacey Kostell <Stacey.Kostell@uvm.edu>. Include the proposed name of the program, the type of degree or credential, a short description of the curriculum and the learning outcomes. Stacey will draw on internal and external expertise as appropriate and will provide a response within one week. Sponsoring units are encouraged to seek this consultation before or very ***early in the process of developing their proposal*** and to include the Enrollment Demand Analysis statement as an appendix to the proposal. Per normal operating procedure, the proposal with appendices should be sent to the Associate Provost for Academic Affairs, who will review it before forwarding it to the Faculty Senate for review and recommendation.

We strongly encourage all academic units to take advantage of the Enrollment Demand Analysis service when considering the development of proposals for new programs. This will help the units and the University maintain currency, viability and excellence in its portfolio of academic programs.

cc: Stacey Kostell, Vice President for Enrollment Management
Amanda Waite, Director, Creative Communications
Ryan Hargraves, Director, Office of Admissions
Kerry Castano, Assistant Provost