BOARD OF HIGHER EDUCATION

REQUEST FOR COMMITTEE AND BOARD ACTION

COMMITTEE: Academic Affairs **NO:** AAC 19-14

COMMITTEE DATE: March 5, 2019

BOARD DATE: March 12, 2019

APPLICATION OF FITCHBURG STATE UNIVERSITY FOR THE BACHELOR OF SCIENCE IN ENVIRONMENTAL PUBLIC HEALTH

MOVED: The Board of Higher Education hereby approves the application of **Fitchburg State University** to award the **Bachelor of Science in Environmental Public Health.**

Upon graduating the first class for this program, the University shall submit to the Board a status report addressing its success in reaching program goals as stated in the application and in the areas of enrollment, curriculum, faculty resources, and program effectiveness.

VOTED: Motion approved by AAC 03/05/2019; Motion adopted by the BHE 03/12/2019

Authority: Massachusetts General Laws Chapter 15A, Section 9(b)

Contact: Winifred M. Hagan, Ed.D., Associate Commissioner for Academic Affairs and Student Success

BOARD OF HIGHER EDUCATION
March 2019
Fitchburg State University

INTENT AND MISSION

The Fitchburg State University (FSU) proposed Bachelor of Science in Environmental Public Health (BS in EPH) is reported to be consistent with the University's mission by focusing on regional and Commonwealth-wide challenges in environmental public health. Via course work in environmental policy, urban history, sociology and geography, the BS in EPH fosters civic and global responsibility. The multi-disciplinary nature of public health fields is a good fit with Fitchburg State's strategic goal of increasing multi- and cross-disciplinary opportunities.
The program major has a unique focus on applying geographic technologies to public health concerns and as such is a new offering in an emerging field and will provide workforce development for the environmental and social needs of North Central Massachusetts and the Commonwealth. MCLA reports that the breadth of the public health discipline of study means that public health careers are not easily defined and classified. For example, some of the career fields for public health sector professionals span Biostatistics and Informatics; Health Promotion and Communication; Community Health; Environmental Health; and Research. The major objective of the proposed BS in EPH program is to provide a rigorous curriculum across health, natural, environmental and social sciences to effectively prepare graduates to enter the workforce or pursue graduate studies. It is expected that the knowledge, experience and skills students gain, will be applied in service to the public as graduates become scientists, educators and administrators in various public health and related fields.

In accordance with Council on Education for Public Health (CEPH) outcomes, MCLA plans that the following competencies will be gained by students, embedded throughout the curriculum or through independent study and internship learning experience:

- The history and philosophy of public health as well as its core values, concepts and functions across the globe and in society
- The basic concepts, methods and tools of public health data collection, use and analysis and why evidence-based approaches are an essential part of public health practice*
- The underlying science of human health and disease including opportunities for promoting and protecting health across the life course
- The socioeconomic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities*[1]
- The fundamental characteristics and organizational structures of the US health system as well as the differences in systems in other countries

[1] *Describes competencies that are part of the EPH major's unique focus on environmental science, geographic information systems (GIS) and geospatial data analysis.*

- Basic concepts of legal, ethical, economic and regulatory dimensions of health care and public health policy and the roles, influences and responsibilities of the different agencies and branches of government
- The underlying science of environmental health and disease including opportunities for promoting and protecting health across the life course*[2]
- The built and natural environment that impacts human health and contributes to health disparities*

Features of the proposed program include its preparation in consultation with faculty from FSU's Division of Health and Natural Sciences and Division of Arts and Sciences; attention to the outcomes of the accrediting organization, CEPH, in creating program outcomes; and use of many existing courses. Students will gain experience with the information technology tools in their field, using statistical and geographic information systems (GIS) software programs. By requiring an independent study research project or internship that extends beyond the classroom, the BS in EPH program would support the environmental and social needs of North Central Massachusetts and the Commonwealth, while building partnerships with community agencies, government and citizens. MCLA anticipates that first-year, on-campus students in the major will receive an invitation to join FSU's residential STEM & Health Sciences Living & Learning Community.

The proposed program has obtained all necessary governance approvals on campus and was unanimously approved by the Fitchburg State University Board of Trustees 0n August 21, 2018. The required letter of intent was circulated on August 22, 2018. One set of comments were received from the University of Massachusetts Dartmouth (UMD). The commentary observed that the proposed program would address an important set of issues related to environmental factors and public health and recognized the focus on spatial analysis and mapping that is absent from other programs. UMD further commented on the total number of core-course credits for the program (60) as well as the inclusion of certain courses that did not appear to directly meet the stated outcome of the program. In response FSU noted that the proposed program is interdisciplinary and as such, must provide depth in the fields represented within the program, and that a 60-credit major is normative in health sciences. FSU spoke to the specific contributions of courses in meeting the CEPH outcomes (e.g. a required course in Urban Geography addresses the CEPH competency regarding "*the built and natural environment that impacts human health hand contributes to health disparities*.").

NEED AND DEMAND

National and State Labor Market Outlook

[2] *ibid*

Academic program completion and job posting information data provided by Gray Associates shows that within the Commonwealth, B.S. in Public Health degree completions increased from 231 in 2013 to 420 in 2016, corresponding to a 26% year-over-year growth for the five years from 2012-2016. For 2016, Gray Associates reports that among the 51.2201 (Public Health, General), 51.2207 (Public Health Education and Promotion) and 51.2202 (Environmental Health) CIP codes, in Massachusetts there were 1723 job postings across all degree levels, more than four times the number of B.S. in Public Health degree completions across the 2 public and 10 private schools offering these degrees in the Commonwealth. Since a B.S. in Public Health is an entry-level working degree in the field, and the optimal preparation for M.S. degree in the field, the B.S. in Environmental Public Health (EPH) is optimally positioned to meet this demand.[3]

A more recent search found that for a 30-day period there were over 2700 job postings in public health and of those 173 in the field of environmental public health. Common job titles include: Safety, Health & Environmental Specialist; Public Health Planner; Safety/Environmental Instructor; Industrial Hygiene- Health & Safety Consultant; Community Health Educator I; Safety Coordinator; Health Communication Associate; Operations Manager for Public Health Nonprofit; Community Outreach Specialist; Research Assistant.[4]

The Executive Office of Labor and Workforce Development's July 2018 MA Unemployment and Job Estimates for the Education and Health Services sector showed that the Commonwealth added 2,700 jobs over the month and, for the year, 8,000 (1%) new jobs were added. Annually in the Commonwealth, the same office predicts 220 annual openings for Environmental Scientists and Specialists, including those in health areas at the Bachelor's degree-level. This is fourth in terms of annual demand in the category of Life, Physical and Social Science occupations.[5]

Student Demand

FSU reports that according to the Association of Schools of Public Health there has been a 3% increase in the number of underrepresented groups entering public health majors across the country. In the fall of 2018, 366 applicants to FSU expressed interest in health-related majors and were admitted but did not deposit. Of those, 10 percent self-identified as Black or African American, four percent as Hispanic, and 12 percent as multi-racial or multi-ethnic. By giving these students access to a rigorous, STEM-based health professions program, we will provide an accessible, affordable four-year degree option for them. In addition, this program has the advantage of preparing students for graduate entry into a nursing program where they can become a Registered Nurse (RN) or for entry into a M.S. in Public Health program. FSU will also

[3] In summer 2018, Fitchburg State University contracted with Gray Associates (https://www.grayassociates.com/) to provide market, curriculum, competitor and related data analysis regarding academic programs.
[4] Gray Associates Job Posting Data; data is taken from Burning Glass, https://www.burning-glass.com/) (data is updated quarterly). Accessed Sept. 17, 2018.
[5]Massachusetts Executive Office of Labor and Workforce Development, available at: https://www.mass.gov/news/massachusetts-unemployment-and-job-estimates-for-july. Published Aug. 17, 2018. Accessed Sept. 17, 2018.

create opportunities to market the EPH major to the underserved and underrepresented students in their Upward Bound Math and Science (UBMS) program.

OVERVIEW OF PROPOSED PROGRAM

The overall curriculum being proposed is designed to address the CEPH competencies. The core curriculum includes five courses in public health, four in geographic science, three in biology and two in sociology. The cognate selections are in geographic science, health promotion or assessment, history, philosophy (ethics) and psychological science. While a suitably rigorous stand-alone curriculum, the EPH major is designed so that students entering as transfers or from another FSU program will still receive credit for many courses. Students will also have to complete the university's Liberal Arts & Sciences (LA&S) General Education requirements. The proposed program is intended to blend general education and specialized coursework with requirements that include traditional public health courses (e.g. Epidemiology, Environmental Health, Public Health in the US), traditional LA&S courses (e.g., Writing, Art, History, Psychology, Biology), and courses specific to the environment-focused nature of the program (e.g., Geographic Information Systems (GIS), Urban Geography, Environmental Geology). An Independent Study or Internship (an applied learning and service experience) is the capstone graduation requirement for all BS in EPH majors, occurring during the final semester prior to graduation. To select the option of an internship, students will be required to have a GPA of 2.5 or better. Students with a GPA under 2.5 will complete a research-based capstone[6].

Duplication

FSU maintains that no existing degree program in the Commonwealth offers the same focus on the intersections of public health, environmental science, geographic information systems (GIS) and geospatial data analysis as does the proposed program. The following institutions offer public health or related programs. A related B.S. degree offered at Worcester State University is a public health concentration in a B.S. in Health Sciences degree.

ACADEMIC AND RELATED MATTERS

Admission

FSU plans that admission to the proposed program will be open to all new first-year, internal major change, and external transfer students. FSU existing admissions requirements are a 2.0 Adjusted High School GPA (HS GPA), with the SAT being optional. Students not meeting the HS GPA minimum may be accepted after completing the FSU Summer Bridge program. Students changing majors will be expected to meet the university academic standing requirements of a

[6] *At this writing, a revised internship policy seeking a 2.0 GPA minimum requirement to align with graduation requirements is being considered through university governance.*

2.0 or higher GPA. Students with GPAs <2.0 are on probation and may enter the major after meeting with their academic advisor. Transfer students will be expected to meet standard FSU requirements, with a sliding scale on their overall GPA depending on the number of credits earned, and a C- grade or higher on any courses that will transfer.

FSU is collaborating with regional partners to advance early college programs, resulting in the creation of the North Central Massachusetts Regional Early College High School Partnership. The consortium's two institutions of higher education and four regional high schools have identified STEM pathways. The proposed program is designed to align with the STEM pathways. It is planned that early college students moving from high schools into the proposed program will have completed a college-preparatory curriculum for entry into designated courses in biology, mathematics, geographic and earth sciences, as well as general education. The BS in EPH program is planned to align with FSU's Upward Bound Math and Science, as well as other regional programs such as the STEM Academy and the Health Careers Institute at Mount Wachusett Community College.

PROGRAM ENROLLMENT PROJECTION

	Year 1	**Year 2**	**# of Students Year 3**	**# of Students Year 4**
New Full Time	16	24	32	32
Continuing Full Time	8	28	46	54
New Part Time				
Continuing Part Time				
Totals	24	52	78	86

Curriculum (Attachment A)

The proposed program is planned to include general education and program-specific requirements. The program will be housed within the Earth and Geographic Sciences Department, in the Division of Health and Natural Sciences.

Internships and Field Studies

The university-wide internship policy includes a 2.5 GPA requirement though FSU is currently revising this policy to require a 2.0 minimum GPA, in alignment with their graduation GPA requirement. Until university policy is revised, students within the propose program who have a 2.0-2.4 GPA and are deemed capable of success by the internship coordinator or faculty supervisor and department chair will be able to complete an internship by submitting a petition to waive the university's GPA requirement. The Dean of Health and Natural Sciences will approve all petitions that have a positive endorsement.

RESOURCES AND BUDGET

Budget (Attachment B)

Fiscal resources needed to begin the program will come from budget reallocations across the campus including, but not limited to, the Capital budget and Strategic Funding Requests that are aligned with the FSU's Strategic Plan and President's fund. FSU expects to recruit a full class each year to meet the program costs, including start-up costs.

Faculty and Administration (Attachment C)

FSU reports it will begin year one with existing faculty teaching core courses in the major and students in the major filling sections of non-EPH prefix core classes or cognate course selections that are existing offerings. FSU plans to hire adjunct faculty to temporarily backfill the workloads of key faculty teaching in the EPH prefix core classes in year one. Subsequently FSU plans to add adjunct faculty as necessary. It is further expected that a full-time faculty specialist in public health will be hired to begin in year three.

Facilities, Library and Information Technologies

The field of Environmental Public Health (EPH) crosses multiple disciplines as previously noted in this document. FSU reports that researchers in environmental public health often choose to use academic journals and gray literature (particularly governmental data) over books. The existing library collections in gray literature and journals are adequate, but FSU finds that greater depth is needed. FSU has addressed the need with an initial and recurring allocation of funds for library resources that are documented in the program budget.

The Antonucci Science Building was renovated with new laboratories for science (including geographic information systems computing facilities) in 2013, and a new mathematics teaching laboratory was created in 2018. Existing facilities are expected to meet program requirements. with allocations planned for laboratory equipment and technology replacements starting in year four.

Affiliations and Partnerships

FSU reports it is working on articulation agreements with Mount Wachusett Community College, which offers associate degrees in Public Health, Allied Health and Earth/Environmental Science, and with Quinsigamond Community College, which offers associate degrees in General Studies-Public Health as well as Environmental Studies. FSU plans that an advisory board will be created within the first 24 months of the program as the initial cohort of students is placed in internships and jobs after graduation. It is expected that the advisory board will include at least one

practitioner, at least one public health official and at least one expert in environmental science or geospatial data analysis. It is also expected that the program will pursue CEPH accreditation once there are sufficient outcomes data to do so.

PROGRAM EFFECTIVENESS

The proposed BS in EPH was developed to include detailed objectives as well as set overall program goals, with measurable outcomes to track and develop in the first few years of the program. The department chair will be responsible for gathering, analysis, and sharing of relevant data regarding program outcomes and attainments.

PROGRAM GOALS DESCRIPTION

Goal	Measurable Objective	Strategy for Achievement	Timetable
Build on the cadre of existing qualified faculty with new hires	Launch the program with existing faculty and part-time hires, transitioning to one full-time hire in year three.	Collaborate across Academic Affairs, the Division of Health and Natural Sciences, Human Resources and the Earth and Geographic Sciences Department to establish a search committee	3-6 part-time hires for years 1-4, starting in the 2019-2020 (AY). One new full-time hire starting in year three.
Admit qualified students to the program	Admit 16 new (first time) students in year 1, and transition 8 students from other majors in year 1 (24 total). Grow new student enrollment to 32 students/ year by year three.	See information on marketing program for strategies.	Reach a goal of at least 32 new (first time) students annually by year three.
Establish Internship and Independent Study (applied learning and service) opportunities for all program students	In years 1-2, existing faculty support structures for applied learning and service experiences are used for students. A systematic program for student selection and referral is in place by year three with a faculty	Build on successful infrastructure supporting applied learning and service opportunities for students, adding a faculty coordinator if demand warrants.	All students will have an opportunity for either type of applied learning and service experience starting in year one.

	coordinator hired if demand warrants it.		
Persistence and Completion	Freshman-sophomore persistence will meet or exceed existing university results (~75%). 4- and 6-year graduation rates slightly above the university average by year 4 (38% and 60%, respectively)	Intrusive faculty-student advising, using Degree Works and the EAB Student Success Collaborative programs will enhance course-registration to reduce time-to-graduation. Support structures such as living and learning communities, the Tutoring Center and the Career Counseling and Advising Center will provide ongoing support for students.	Starting in year two, persistence will meet or exceed the university average for the entire first time, full-time freshman cohort. By year four, 4-year graduation rates will meet or exceed the university 4-year graduation rate.
Perform a program review of the Environmental Public Health major at seven-year intervals beginning in 2024-2025 AY.	Use the existing program review criteria, the department will complete a self-study early in the 2024-2025 AY with a site visit in spring 2025.	AVPAA and VPAA will add the major to the program review timeline. The Director of Assessment will work with the department to establish assessment methods.	Initial program review in 2024-2025 AY, recurring every seven years.

EXTERNAL REVIEW AND INSTITUTIONAL RESPONSE

The program was review by Serena Rajabiun, PhD, MPH, Research Assistant Professor & Senior Evaluator Boston University Schools of Social Work & Public Health; and Clare M. Lenhart, PhD, MPH, Associate Professor of Public Health Director, Institute for Public Health Research & Innovation East Stroudsburg University (Pennsylvania). The reviewers found that the program fit with the mission of FSU in providing affordable, accessible education and that it is designed to respond to the community's needs around environmental safety and population health. They believe it has a coherent design with appropriate breath, depth, and progression of learning. They found the program rigorous as well as flexible in design.

The reviewers made suggestions regarding course sequencing, the competitive set of programs statewide, national objectives regarding health and environment, and providing appropriate administrative support for the program and its evaluation. FSU responded to the suggestions with descriptions of how they would be applied to modify and change the proposal. The proposal submitted to staff reflected adjustments to the program design in the areas addressed by the reviewers and in FSU's response to the review.

STAFF ANALYSIS AND RECOMMENDATION

Staff thoroughly reviewed all documentation submitted by **Fitchburg State University** and the external reviewers. Staff recommendation is for approval of the program **Bachelor of Science in Environmental Public Health**.

ATTACHMENT A: CURRICULUM

Curriculum Outline: Bachelor of Science in Environmental Public Health

Required (Core) Courses in the Major (Total # courses required = *13*)		
Course Number	Course Title	Credit Hours
EPH 2XXX	Public Health in the United States (new course)	3
EPH 2XXX	Fundamentals of Epidemiology (new course)	3
EPH 3XXX	Environmental Health (new course)	3
EPH 3XXX	Evaluation Methods in Public Health (new course)	3
GEOG/POLS 3XXX	Environmental Policy (new course)	3
GEOG 1100	Principles of Human Geography	3
GEOG 3300	Urban Geography	3
GEOG 4500	Remote Sensing of the Environment	3
BIOL 1200	Anatomy & Physiology I	4
BIOL 1300	Anatomy & Physiology II	4
BIOL 2700	Medical Microbiology	4
SOC 2440	Urban Sociology	3
SOC 2720	Medical Sociology	3
	Subtotal Required Credits	**42**
Cognate Course Selections (Total # courses required = 7) (attach list of choices if needed)		
GEOG 1000 or GEOG 2XXX	Earth Systems Science Environmental Geology (new course)	3
GEOG 4000 or GEOG 4001	Geographic Information Systems Web GIS (Geographic Information Systems, new course)	3
GEOG 4900 or GEOG 4940	Independent Study in Geography Internship in Geography	3
EXSS 2400 or NURS 2300	Health Promotion Health Assessment	3
HIST 2022 or HIST 2140 or HIST 3710	Constructing History U.S. Economic History Urban America	3
PHIL 2001 or PHIL 2500	Medical Ethics Contemporary Ethical Problems	3
PSY 2350 or PSY 2665	Abnormal Psychology Health Psychology	3
	Subtotal Cognate Course Selection Credits	**21**

Distribution of General Education Requirements (48 total credits) Attach List of General Education Offerings (Course Numbers, Titles, and Credits) LA&S (General Education) courses that are prescribed are highlighted in **bold** text.	# of Gen Ed Credits
Arts and Humanities, including Literature and Foreign Languages* (see the Global Diversity designation below) **Of the 48 required credits, at least five courses must be in the Arts Cluster ("ART"), two must fulfill the writing I and II requirement, one must be an art or music course (AOM), and one must be a literature course (LIT)** **Arabic** • ARAB 1026 -Arabic for Beginners I • ARAB 1100 -Arabic for Beginners II • ARAB 2030 -Contemporary Arab World **Art** • ART 1100 -Art Appreciation • ART 1300 -Introduction to Studio Art: Drawing, Painting, and Sculpture • ART 1400 -Drawing • ART 1600 -Design • ART 1650 -Three-Dimensional Design • ART 2004 -Ceramics • ART 2010 -Ancient and Medieval Art • ART 2020 -Ancient Art • ART 2030 –Sculpture I • ART 2100 -Asian Art • ART 2102 -Introductory Painting • ART 2120 -Commonwealth of Asian Arts • ART 2150 -The Art of Puppetry • ART 2200 -Life Drawing • ART 2350 -American Art I: Colonial to 1900 • ART 2360 -American Art II: 1900 to Present • ART 2450 -Water-Based Media • ART 2570 -Northern Renaissance Art • ART 2700 -Baroque Art • ART 2850 -Italian Renaissance Art • ART 2900 -Nineteenth Century Art • ART 3000 -Contemporary Art • ART 3010 -Sculpture II • ART 3020 -Intermediate Painting • ART3100 -Art Criticism • ART 3150 -Early Twentieth Century Art • ART 3200 -Advanced Open-Media Studio Art • ART 3300 -History of Architecture • ART 3500 -History of Modern Architecture • ART 3700 -Women, Art, and Society **Chinese** • CHIN 1000 -Mandarin for Beginners I • CHIN 1100 -Mandarin for Beginners II	**15**

English Studies • **ENGL 1100 - Writing I (prescribed LA&S selection)** • **ENGL 1200 -Writing II (prescribed LA&S selection)** • ENGL 2000 -American Literature I: Age of Exploration to the Civil War • ENGL 2010 -Introduction to Cultural Studies • ENGL 2100 -American Literature II: Civil War to the Present • ENGL 2200 -British Literature I: Beowulf to Milton • ENGL 2210 -British Literature II: Pepys to Shelley • ENGL 2220 -British Literature III: Bronte to Rushdie • ENGL 2300 -Literature and Disability • ENGL 2330 -Literature and Film • ENGL 2340 -American Political Film and Literature: Conspiracies & Controversies • ENGL 2400 -World Literature I • ENGL 2500 – World Literature II • ENGL 2540 - Global Issues in Film • ENGL 2600 -The Bible as Literature • ENGL 2620 -Classical Mythology • ENGL 2650 -Ethnic American Literature • ENGL 2660 - 19th Century African American Literature • ENGL 2670 - 20th Century African American Literature • ENGL 2700 -The Short Story • ENGL 2710 -Introduction to Science Fiction and Fantasy • ENGL 2720 -Reading Poetry • ENGL 2750 -Detective Fiction • ENGL 2890 -Storytelling and the Oral Tradition • ENGL 2900 -Children's Literature • ENGL 2910 -Literature for Young Adults • ENGL 2999 -Approaches to English Studies • ENGL 3000 -World Drama • ENGL 3010 -American Drama • ENGL 3020 -Modern Drama • ENGL 3025 -English Studies Abroad • ENGL 3030 -The Middle Ages • ENGL 3040 -British Literature Since World War II • ENGL 3050 -20th-Century Irish Literature • ENGL 3060 -Modern Poetry • ENGL 3061 -Jewish American Literature &Culture • ENGL 3070 -European Literature I • ENGL 3080 -European Literature II • ENGL 3090 -Questioning War in Film and Literature • ENGL 3091 -Asian Cinemas: Eastern Visions in a Post-Colonial World • ENGL 3092 -Transatlantic Literature • ENGL 3120 -Golden Age of English Renaissance Literature • ENGL 3210 -Major American Writers of the 20th Century • ENGL 3220 -American Novel to 1950 • ENGL 3300 -Women and Literature • ENGL 3460 -Rebels in American Film and Literature: Race, Gender, and Class Outsiders • ENGL 3480 -Writing for the Web • ENGL 3540 -Writing Film Criticism • ENGL 3551 -Mise en scène • ENGL 3620 -The Classical Tradition in Western Literature • ENGL 3700 -African Literature • ENGL 3710 -South Asian Literature • ENGL 3720 -Caribbean Literature	

• ENGL 3730 -Comics and the Graphic Novel as Literature • ENGL 3880 -Folklore in America **French** • FREN 1000 -French for Beginners I • FREN 1100 -French for Beginners II **German** • GER 1000 -German for Beginners I • GER 1100 -German for Beginners II **Latin** • LATN 1000 -Latin for Beginners I • LATN 1100 -Latin for Beginners II • LATN 2000 -Intermediate Latin I • LATN 2100 -Intermediate Latin II **Music** • MUSC 1000 -Art of Music • MUSC 1100 -From Woodstock to the iPod: A Social History of American Popular Music • MUSC 1300 -Beginning Musical Instruction • MUS.0 1400 -Introduction to Music Technology • MUSC 1500 -World Music • MUSC 2000 -Commonwealth of the Arts • MUSC 2100 -Commonwealth of Ancient Arts • MUSC 2120 -Commonwealth of Asian Arts • MUSC 2130 -Commonwealth of the Modern Arts • MUSC 2200 -Basic Music Theory • MUSC 2210 -Commonwealth of the Renaissance Arts • MUSC 2300 -Choral Arts • MUSC 2310 -Intermediate Musical Instruction • MUSC 2400 -Instrumental Arts • MUSC 2500 -Class Piano • MUSC 2600 -Class Voice • MUSC 2700 -Class Guitar • MUSC 3100 -Symphony • MUSC 3300 -Advanced Musical Instruction • MUSC 3450 -Appreciating the American Musical • MUSC 3500 -American Music • MUSC 3600 -Bach to Beethoven • MUSC 3650 -Romanticism to Rock • MUSC 3700 -19th Century Music • MUSC 3750 -Music in Film • MUSC 3800 -History of Jazz • MUSC 3900 -Women, Music, and Society **Spanish** • SPAN 1000 -Spanish for Beginners I • SPAN 1100 -Spanish for Beginners II • SPAN 2000 -Intermediate Spanish I • SPAN 2001 -Spanish for Heritage Students • SPAN 2100 -Intermediate Spanish II • SPAN 3000 -Cinema for Spanish Conversation	

Speech • SPCH 1000 -Introduction to Speech Communication • SPCH 1700 -Argumentation and Debate • SPCH 7400 -Small Group Communication • SPCH 1600 -Public Speaking • SPCH 2600 -Persuasion **Theater** • THEA 1720 -Voice and Articulation • THEA 2700 –Acting I • THEA 2730 -History of the Theater I • THEA 2740 -History of the Theater II • THEA 3003 -Dramaturgy • THEA 3550 -Page to Stage Analysis	
Mathematics and the Natural and Physical Sciences **Of the 48 required credits at least four courses must be in the Science, Math and Technology Cluster ("SMT"), one must be a math, one must be a lab science, and one must fulfill the health and fitness requirement** **Biology** • BIOL 1000 -Introduction to Life Science • BIOL 1010 -Introduction to Environmental Science • BIOL 1050 -Life Science for Educators • BIOL 1400 -General Botany • BIOL 1650 -Nutrition • BIOL 1750 -Human Genetics • BIOL 1800 -General Biology I • BIOL 1900 -General Biology II • BIOL 2100 -Flora of New England • BIOL 3800 -Vertebrate Biology **Chemistry** • CHEM 1000 -Chemistry in a Changing World • CHEM 1200 -Chemistry for the Health Sciences • CHEM 1300 -General Chemistry I • CHEM 1400 -General Chemistry II **Computer Science** • CSC 1000 -Introduction to Programming • CSC 1010 -Computer Science Basics • CSC 1100 -Computer Applications • CSC 1400 -Computer Information Systems • CSC 1500 -Computer Science I **Earth and Geographic Sciences** • GEOG 1000 -Earth Systems Science • GEOG 1100 -Principles of Human Geography • GEOG 1300 -Earth, Sea, and Air • GEOG 2000 -Astronomy • GEOG 2056 -Climate Change and Human History • GEOG 2200 -Meteorology	**12**

• GEOG 2400 -Introduction to Geospatial Technologies • GEOG 2500 -Oceanography • GEOG 2800 -Map Use • GEOG 3110 -Climatology • GEOG 3120 -Computer Cartography • GEOG 3300 -Urban Geography • GEOG 3400 -Population Geography • GEOG 4000 -Geographic Information Systems **Environmental Science** • ENSC 1000 -Introduction to Environmental Science **Exercise and Sports Science** • **EXSS 1000 -Health and Fitness (prescribed LA&S selection)** • EXSS 2060 -Exercise, Nutrition, and Heart Disease **Mathematics** • MATH 1200 -Finite Mathematics • MATH 1250 -Introduction to Functions • MATH 1300 -Precalculus • MATH 1500 -Informal Number Theory • MATH 1600 -Informal Mathematical Modeling • **MATH 1700 -Applied Statistics (prescribed pre-requisite)** • MATH 1800 -Business Statistics • MATH 1900 -Discrete Mathematics • MATH 2000 -Informal Geometry • MATH 2100 -Technical Calculus • MATH 2200 -Calculus for Business • MATH 2300 –Calculus I • MATH 2400 -Calculus II • MATH 2500 -Introduction to Mathematical Thought • MATH 2600 -Linear Algebra **Physics** • PHYS 1100 -Physical Science • PHYS 2000 -Astronomy • PHYS 2300 -General Physics I • PHYS 2400 -General Physics II • PHYS 2600 -Calculus-Based Physics I • PHYS 2700 -Calculus-Based Physics II	
Social Sciences* (see the Global Diversity designation below) **Of the 48 required credits at least three courses must be in the Citizenship and the World Cluster ("CTW"), one of the three must be a human behavior course, and one of the three must be a history course ("HIST")** **African-American Studies** • AAST 1000 -Introduction to African-American Studies • AAST 2300 -African-American History • AAST 2650 -Ethnic American Literature • AAST 2660 -19th Century African American Literature • AAST 2670 -20th Century African-American Literature • AAST 3800 -History of Jazz	**9**

American Sign Language (ASL)
• ASL 1000 -American Sign Language (ASL) for Beginners I
• ASL 1050 -Introduction to Deaf Studies
• ASL 1100 -American Sign Language (ASL) for Beginners II

American Studies
• AMST 1800 -Introduction to American Studies I
• AMST 1900 -Introduction to American Studies II
• AMST 3160 -The Civil Rights Movement

Economics
• **ECON 1100 -Principles of Economics: Macroeconomics (prescribed pre-requisite)**
• ECON 1200 -Principles of Economics: Microeconomics
• ECON 2010 -Political Economy of Gender
• ECON 2140 -U.S. Economic History

History
• HIST 1000 -World Civilizations I
• HIST 1100 -World Civilizations II
• HIST 1400 -United States History I
• HIST 1500 -United States History II
• HIST 2015 -Immigration and American Identity
• HIST 2021 -Reading Historical Landscapes
• HIST 2022 -Constructing History
• HIST 2054 -The Byzantine Empire
• HIST 2056 -Climate Change and Human History
• HIST 2070 -The European Renaissance
• HIST 2080 -The European Enlightenment
• HIST 2140 -U.S. Economic History
• HIST 2155 -Nazi Germany: Hitler's Rise and Fall
• HIST 2160 -Holocaust
• HIST 2170 -Armenian Genocide
• HIST 2300 -African-American History
• HIST 2420 -Italian American History: Immigration and Identity
• H1ST 2500 -Women in U.S. History: 1870 to the Present
• HIST 2501 -Culture and Society of India
• HIST2530 -The European Middle Ages
• HIST 2700 -History of Mexico
• HIST 2722 -Comparative Slavery
• HIST 2745 -Women in Latin American History
• HIST 2760 -The Conquest of America
• HIST 2770 -Latin American Revolutions
• HIST 3000 -Modern Italian History: Risorgimento to Today
• HIST 3001 -Life in the Roman City
• HIST 3006 -American Religious History
• HIST 3007 -Native American History
• HIST 3040 -America in the Nuclear Era: 1945-1968
• HIST 3050 -America Since 1968
• HIST 3130 -Oral History and Fitchburg State University's Past
• HIST 3760 -The Civil Rights Movement
• HIST 3420 -The French Revolution
• HIST 3600 -U.S. Civil War
• HIST 3655 -U.S. Gilded Age and Progressive Era

• HIST 3710 -Urban America • HIST 3740 -Vietnam: A Century of Conflict • HIST 3750 -Cold War • HIST 3760 -China Since 1900 • HIST 3850 -U.S. In World Affairs: 1898 to the Present **Interdisciplinary Studies** • IDIS 1000 -Introduction to Women, Gender, and Sexuality Studies • IDIS 1002 -Introduction to Disability Studies • IDIS 1200 -Introduction to International Studies • IDIS 1600 -Critical and Creative Thinking • IDIS 1800 -Global Issues • IDIS 2030 -Contemporary Arab World • IDIS 2210 -Commonwealth of the Renaissance Arts • IDIS 2500 -Culture and Society of India • IDIS 2501 -Italy Through Film • IDIS 2540 -Global Issues in Film • IDIS 2550 -Art and Culture Abroad • IDIS 3000 -Integrative Seminar in Disability Studies • IDIS 3001 -Italian Culture (in English) I -From Antiquity to 1800 • IDIS 3100 -Italian Culture (in English) II -From 1800 to the Present • IDIS 3300 -Women in Italy **Philosophy** • PHIL 1000 -Introduction to Western Philosophy • PHIL 1100 -Logic • PHIL 2001 -Medical Ethics • PHIL 2500 -Contemporary Ethical Problems • PHIL 2600 -Philosophy of Human Nature • PHIL 3600 -Philosophy of Religion • PHIL 3610 -World Religions **Political Science** • **POLS 1000 -United States Government (prescribed pre-requisite)** • POLS 1100 -Introduction to Political Science • POLS 1200 -Model UN • POLS 1300 -Introduction to International Relations • POLS 1800 -Global Issues • POLS 1900 -Introduction to Peace Studies • POLS 2002 -Elections and Campaigns • POLS 2010 -Models of Global Politics • POLS 2540 -Global Issues in Film • POLS 3160 -The Civil Rights Movement **Psychological Science** • **PSY 1100 -Introduction to Psychological Science (prescribed pre-requisite)** • PSY 1200 -Lifespan Development **Sociology** • SOC 1050 -Introduction to Deaf Studies • **SOC 1100 -Introduction to Sociology (prescribed pre-requisite)**	
*Of the 48 required credits, at least two courses must be in Global Diversity in at least two clusters. At least one of these courses must address a non-western region or culture.	**0 additional credits**

Liberal Arts & Sciences (General Education) Advanced Option (see below)**	**12**
Subtotal General Education Credits	**48**

Curriculum Summary	
Total number of courses required for the major program	**20 (including 3 x 4 credit courses)**
Total number of courses required for the General Education curriculum	**16 (including 1 x 4 credit course)**
Total number of free-elective courses	**3**
Total credit hours required for degree	**121**

Prerequisite, Concentration or Other Requirements:

Math Readiness Requirement: There will be no pre-requisite to enter the Educational Studies major except that students must fulfill the math readiness requirement in order to fulfill the University Liberal Arts and Sciences requirements.

Pre-requisites in the degree program:
BIOL 2700: CHEM 1200 and BIOL 1300
BIOL 1300: BIOL 1200
GEOG 4500: GEOG 1000 or GEOG 1200
GEOG 3300: Math Readiness Requirement
GEOG/POLS 3XXX: GEOG 1000 or GEOG 2XXX (Environmental Geology)
GEOG 2XXX: Math Readiness Requirement
EPH 2XXX (Fundamentals of Epidemiology): MATH 1700
EPH 3XXX (Environmental Health): GEOG 1000 or GEOG 2XXX (Environmental Geology)
EPH 3XXX (Evaluation Methods in Public Health): EPH 2XXX (Fundamentals of Epidemiology) and EPH 2XXX (Public Health in the United States)
SOC 2440 and SOC 2720: SOC 1100
PSY 2340 or PSY 2655: PSY 1100
ECON 2010 or ECON 2500: ECON 1100
POLS 3000: POLS 1000

****University Liberal Arts & Sciences (General Education) Advanced Option Requirement:**
Each student will select one of the following options with their academic advisor:

Option A: 6 credits in a single foreign language and 6 credits from a single discipline outside of the student's first major, at the 2000 level or above of LA&S courses from a recognized LA&S discipline or LA&S designated courses from a discipline that is not recognized as LA&S).

Option B: 12 credits (with a minimum of 6 credits at the 2000 level or above) in a single recognized major or 12 credits toward a LA&S minor (with a minimum of 6 credits at the 2000 level or above).

Option C: Designed curriculum submitted by the completion of 60 credits. The student, working with an advisor, develops a unique curriculum based on his or her interests, needs, and/or goals. The curriculum, with a statement of its rationale, must be approved by the advisor, the department chair and the appropriate dean. It must then be filed with the registrar. The curriculum must include a minimum of 12 credits, at least 6 of which must be at the 2000 level or above. These 12 credits must be LA&S courses (either from a recognized LA&S discipline or LA&S designated courses from a discipline that is not recognized as LA&S), and no
more than one of the courses may be from the student's first major.

Free Electives:
Students are recommended to select free electives that meet career goals by seeking advice from their academic advisor.

ATTACHMENT C: FACULTY

Name of faculty member (Name, Degree and Field, Title)	Check if Tenured	Courses Taught Put (C) to indicate core course. Put (OL) next to any course currently taught online.	Number of sections	Division of College of Employment	Full- or Part- time in Program	Full- or part-time in other department or program (Please specify)	Sites where individual will teach program courses
Arend, Patricia Ph.D. in Sociology Associate Professor	☒	• SOC 2440: Urban Sociology (C)	[1]	Day	Part-Time	Yes (Behavioral Sciences)	• Main Campus
Aryee, Augustine Ph.D. in Sociology Professor	☒	• SOC 2720 Medical Sociology (C)	[1]	Day	Part-Time	Yes (Behavioral Sciences)	• Main Campus
Baker, Laura Ph.D. in History Professor	☒	• HIST 3710: Urban America	[1]	Day	Part-Time	Yes (Economics, History, Political Science)	• Main Campus
Benes, Deborah Ph.D. in Nursing Assistant Professor	☐	• EPH 2XXX: Public Health in the US (C) • EPH 2XXX: Fundamentals of Epidemiology (C) • EPH 3XXX: Evaluation Methods in Public Health (C)	[1] [1] [1]	Day	Part-time	Yes (Nursing)	• Main Campus
Clark, Elyse Ph.D. in Hydro geochemistry Assistant Professor	☐	• GEOG 1000: Earth Systems Science • GEOG 2XXX Environmental Geology	[1] [1]	Day	Part-Time	No	• Main Campus

Dee, Christine Ph.D. in History Professor	☒	• HIST 2022: Constructing History	[1]	Day	Part-Time	Yes (Economics, History, Political Science)	• Main Campus
Deptula, Daneen Ph.D. in Clinical Psychology Associate Professor	☒	• PSY 2350: Abnormal Psychology	[1]	Day	Part-Time	Yes (Psychological Science)	• Main Campus
Elveren, Adam, Ph.D. in Economics Assistant Professor	☐	• HIST 2140: US Economic History	[1]	Day	Part-Time	Yes (Economics, History, Political Science)	• Main Campus
Godin, Jeffrey Ph.D. in Kinesiology: Exercise Science Professor	☒	• EXSS 2400: Health Promotion	[1]	Day	Part-Time	Yes (Exercise and Sports Science)	• Main Campus
Gordon, Elizabeth Ph.D. in Marine Science Associate Professor	☒	• GEOG/POLS 3XXX Environmental Policy (C) • EPH 3XXX: Environmental Health (C) • GEOG 4500: Remote Sensing of the Environment (C)	[1] [1] [1]	Day	Part-Time	No	• Main Campus
Green, Nancy M.S. in Nursing Instructor	☐	• NURS 2300: Health Assessment	[1]	Day	Part-Time	Yes (Nursing)	• Main Campus
Huang, Jane Ph.D. in Geography Professor	☒	• GEOG 3300: Urban Geography (C) • GEOG 4000: Geographic Information Systems	[1] [1]	Day	Part-Time	No	• Main Campus

		• GEOG 4001: Web GIS					
		• GEOG 1100: Principles of Human Geography (C)	[1]	Day	Part-Time	No	• Main Campus
McMenamy, Jannette Ph.D. in Psychology Professor	☒	• PSY 2350: Health Psychology	[1]	Day	Part-Time	No (Psychological Science)	• Main Campus
Rollins, Sean Ph.D. in Microbiology Associate Professor	☒	• BIOL 2700: Medical Microbiology (C)	[1]	Day	Part-Time	Yes (Biology and Chemistry	• Main Campus
Schoenfeld, Thomas Ph.D. in Psychobiology Associate Professor	☒	• BIOL 1200: Anatomy & Physiology I (C) • BIOL 1300: Anatomy & Physiology II (C)	[1] [1]	Day	Part-Time	Yes (Biology and Chemistry)	• Main Campus
Svolba, David Ph.D. in Philosophy Associate Professor	☒	• PHIL 2001: Medical Ethics • PHIL 2500: Contemporary Ethical Problems	[1] [1]	Day Day	Part-Time Part-Time	Yes (Humanities) Yes (Humanities)	• Main Campus • Main Campus