Public Health Science Self Study

Department of Environmental, Geographic, and Public Health Sciences

Fitchburg State University

2019-2024

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Public Health Science Self Study 2024

Contents

Executive Summary of Comprehensive Plan for Improvement

The Environmental, Geographic, and Public Health Sciences Department, composed of six full time faculty members, offers majors in Environmental and Earth Science (EES), Geographic Science and Technology (GST), and Public Health Science (PHS; concentrations in Public Health Practice and Environmental Health). We also house Physics.

The department underwent review for EES and GST programs in AY20. This is the first review for our PHS major since its inception in Fall 2019. The department overall has undergone several changes, including updating the name of the department, from Earth and Geographic Sciences to Environmental, Geographic, and Public Health Sciences, to reflect the addition of the Public Health program. We have added one full time tenure-track faculty member in physics, which was a replacement due to retirement.

In the past five years, we have seen decreases in enrollment of two of our majors (EES, GST), alongside declining enrollment at the University overall. In contrast, the PHS major has increased from 5 students during its first year, to 34 students in the most recent academic year (AY24). This strong increase in PHS enrollment led to the approval of a faculty hire; we just concluded a failed search for a Visiting Assistant Professor in Public Health. Despite the increasing enrollment in the major, we still see relatively low numbers of incoming students, both freshmen and transfers, who declare PHS as their major, and we would like to continue to increase the number of our students overall. We plan to increase our recruitment efforts, particularly through community colleges, to attract more students to our department.

We have many of the resources that we need to support our teaching and research in environmental and geographic science, which has allowed us to keep pace with emerging developments in those fields. As a result, our students have a variety of participatory learning opportunities and field experiences through coursework, internships, and independent research. The lack of public health expertise in the department, however, has limited the expansion of the program overall and of experiential opportunities to PHS majors. We also recognize some gaps in our public health curriculum that we hope a new faculty member would assist in filling.

As a relatively small department, we are able to create an engaging and supportive environment for our students, and faculty members from our department have developed strong collaborations with other departments to expand teaching opportunities. While we've had an active student club in the past, the department lacks a consistent offering of extracurricular activities and no current club exists with a public health focus. Faculty in the department will continue to organize more departmental social and outreach events to build community and explore student interest in creating a public health student club.

Overall, we have noted substantial expansion and strengthening of the public health program in the past five years, and with a new hire, would be well-positioned to support its continued growth and explore accreditation of the public health program.

1. Overview and vision

1.1. Overview of department

The Department of Environmental, Geographic, and Public Health Sciences offers majors in Environmental and Earth Science (EES), Geographic Science and Technology (GST), and Public Health Science (PHS). Minors are offered in Earth Science, Geographic Information Systems (GIS), Geographic Science and Technology (GST), GIS Crime Mapping and Analysis, and Environmental Public Health (EPH). We also house Physics, offering service courses to our majors and those of other departments.

There are currently six full time faculty members in the department: three full time earth science faculty (Drs. Clark, Gordon, and Parsons), one full time geographic science faculty (Dr. Huang), and two full time physics faculty (Drs. Vanasse and Yu). We just concluded a failed search for a Visiting Assistant Professor in Public Health. Adjunct faculty members support the teaching of public health core courses as well as general education and EES and GST major courses in the department. For the past five years we have typically had two or three adjunct faculty members per semester. Faculty rank, demographic information, and teaching responsibilities are provided in Appendix F.

Our faculty's expertise includes geology, oceanography, hydrogeology, planetary science, climate change, geospatial technologies, geographic information systems, and physics. This diversity ensures that graduates emerge with a dynamic understanding of these disciplines.

Since our previous self-study, in which the EES and GST programs were reviewed, student enrollment in our department has increased (see Appendix B). We have grown from 47 students in Fall 2019 to 63 students as of Fall 2024, with 26 EES majors, 3 GST majors, and 34 PHS majors. At a time of declining enrollments at the University overall, this represents an increase from 1.24% of majors at the University in Fall 2019 to 2.47% in Fall 2024. There are currently (as of Fall 2024) 29 students earning minors in the department – 6 in Earth Science, 10 in GIS, 9 in GST, 3 in GIS Crime Mapping, and 1 in EPH.

Since 2019, we have modified the name of the department from *Earth and Geographic Sciences* to *Environmental, Geographic, and Public Health Sciences* to more accurately reflect the programs offered in the department. The Public Health major was added in Fall 2019, and the curriculum has undergone revision since that time; these changes are described in detail in section 1.4.

1.2. Program's vision, mission, and objectives

1.2.1 Department vision

The Environmental, Geographic, and Public Health Sciences Department seeks to prepare students as critical thinkers to engage with global environmental and public health challenges. The department cultivates the intersections of our academic majors while also deepening our individual programs. Faculty and students serve our local and regional community via course-based projects, independent research, and internships. We value leadership, a culture of sustainability, lifelong learning, and promotion of sound scientific principles, and recognize the indispensable role that the study of nature, society, and health has in a liberal arts education.

1.2.2 Department mission

Students in the Environmental, Geographic, and Public Health Sciences Department will develop a rich understanding of Earth's natural and social systems and their intersection with human health by cultivating analytical skills in the field, classroom, and laboratory environments, and engagement with the community. Programs in the department are designed to allow students to explore their interests with experiences that bring together theory and application, contribute to scholarly development, and prepare students for a range of career pathways.

1.2.3 Public Health Science objectives

Students who earn a major in Public Health Science will demonstrate a scientific understanding of human health and how socioeconomic and environmental variables influence health outcomes, and develop statistical and analytical skills to evaluate public health concerns. They will be able to distinguish between science and non-science, support arguments with evidence, communicate their ideas effectively, and explain the necessity and characteristics of an interdisciplinary approach to solving public health issues.

In particular, Public Health Science students will:

- discuss the history and philosophy of public health.
- use appropriate methods and tools to analyze public health data and will discuss the importance of evidence based approaches.
- explain the science of human health and disease, and discuss opportunities for promoting health.
- describe the socioeconomic, behavioral, biological, and environmental factors that affect human health.
- discuss the fundamental concepts and features of project planning, assessment, and evaluation.
- describe the characteristics of health systems in the US as well as other countries.
- explain the basic concepts of, and responsibilities of government in, the legal, ethical, economic, and regulatory dimensions of public health policy.
- describe fundamental scientific principles related to environmental health.
- explain how the built environment influences human health and contributes to health disparities.
- synthesize evidence from various sources to address environmental and public health issues.

1.3. Relationship to the university mission, vision, and strategic plan

The Environmental, Geographic, and Public Health Sciences Department's mission and vision aligns with key aspects of those of the University. For example, part of the department's vision to "prepare students as critical thinkers to engage with global environmental and public health challenges" supports the university's aim to "prepare students for a global society" as well as its mission to "prepare[s] students to lead, serve, and succeed by fostering lifelong learning and civic and global responsibility." Similarly, our department's vision highlights that our "faculty and students serve our local and regional community via course-based projects, independent research, and internships", which aligns with the university's goal to "build partnerships within our community to provide real-world opportunities for our students and collaborative solutions to community issues." The Public Health Science program itself embodies Fitchburg State University's commitment "to excellence in teaching and learning" that "blends liberal arts and sciences and professional programs", as well as goal one of the University's strategic plan to

"forge innovative paths to knowledge acquisition, career readiness, social mobility, and lifelong learning". The curriculum is inherently interdisciplinary, combining core public health courses (Epidemiology, Public Health in the US, Environmental Health) with traditional liberal arts and science courses (e.g., geography, biology, sociology, economics, political science). The Environmental, Geographic, and Public Health Sciences Department, along with other departments on our campus, share the University's commitment to teaching and learning excellence, and contribute toward the liberal arts and sciences education of all students on our campus.

1.4. Overview of program

This self study focuses on the Public Health Science major within the department. The BS degree in Public Health Science degree is intended for students who are interested in the health sciences but seek an alternative health profession beyond those offered through Nursing, Biology, or Exercise and Sports Science (EXSS). The overall intent of the Public Health Science major is to provide a rigorous science-based (health and natural sciences, social science) curriculum to prepare students to enter the workforce or pursue graduate studies.

As described in the University's Catalog[1]:

> The Environmental Public Health concentration focuses on the intersection between human health and the environment, promotes human health and well-being, and fosters healthy and safe communities. Students learn fundamental concepts of public health, epidemiology, and research methods for public health, along with methods to map, analyze, and predict public health concerns. Environmental health is a key part of any comprehensive public health system. Practitioners in the field work to advance policies and programs that create healthier communities by reducing environmental exposures in air, water, soil and food, and work towards strategies and education that prevent widespread transmission of communicable and other diseases.
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> The Public Health Practice concentration focuses on the socioeconomic determinants of health, promotes human health, and fosters healthy and safe communities. Students learn fundamental concepts of public health, epidemiology, and research methods for public health, along with methods to map, analyze, and predict public health concerns. Students develop the knowledge and skills needed to shape public health policy and interventions from socioeconomic perspective.

1.4.1. Development of the program

The Environmental Public Health (EPH) major was added to our department's offerings in Fall 2019. The new major grew out of an initial collaboration in 2015 between Drs. Jane Huang (EGPHS) and Debbie Benes (Nursing), who suggested the creation of a program focused on applying geographic technologies to public health concerns. The Dean of Health and Natural Sciences at that time, Dr. Meg Hoey, later convened a group of faculty from the sciences and mathematics to discuss alternative STEM pathways for students at Fitchburg State; the Environmental Public Health (EPH) major was proposed as one of those pathways. Dr. Liz Gordon, then Chair of the EGPHS department, coordinated discussions among faculty from Health and Natural Sciences as well as from Arts and Sciences during AY17 and 18 to

[1] https://catalog.fitchburgstate.edu/

develop the curriculum for EPH. With input from the Provost at the time, Dr. Alberto Cardelle, who had a public health background, and informed by the competencies outlined by the Council on Education for Public Health (CEPH), the curriculum was refined as prepared for submission to University governance and the Massachusetts Board of Higher Education (BHE). EPH was approved as a new major in our department by the All University Committee in May 2018. The Fitchburg State University Board of Trustees gave final approval in August 2018 and the Massachusetts BHE approved the new major in March 2019. Environmental Public Health was offered as a major to students at Fitchburg State beginning in Fall 2019.

As noted, the curriculum of the first iteration of the major was designed around the Council on Education for Public Health standards for bachelor's degrees in Public Health[2]. These are the standards outlined for programs seeking accreditation from CEPH, and while we have not yet pursued accreditation given the infancy of the program, we will begin to explore the accreditation process in the next few years. We identified existing courses across the University that connected to those standards, keeping development of new courses to a minimum for the initial offering of the major. This attempt to address EPH learning outcomes with existing courses resulted in a major that required 96 of a student's 120 credits. This posed a barrier to transfer students, and any student interested in the major had little flexibility to pursue electives.

Two major circumstances prompted curriculum revision within the first couple of years of the major's first offering in Fall 2019. The COVID pandemic that began in March 2020 elevated the visibility of public health as a discipline, potentially boosting enrollment. Around the same time, the University approved a new general education program scheduled to go into effect Fall 2021. As noted previously, the large number of credits required for the original EPH curriculum was burdensome for transfer students, both internal and external. Reflecting on these circumstances, meaningful changes to attract more students and reduce barriers to graduation were made, resulting in a revised major with a streamlined curriculum. An environmental pathway was retained with the major, but a new pathway for students interested in a more traditional approach to public health was created. The name of the major was changed to Public Health Science, with concentrations in Environmental Public Health (EPH) and Public Health Practice (PHP). The revised curriculum includes a core set of 11 courses (35 credits), 7 required courses (21-22 credits) that are fulfilled as part of a student's general education distribution, and 7 courses (21-22 credits) that are specific to each concentration. The details of those courses are outlined below. This change reduced the number of requirements from 96 to 77 (PHP)-79 (EPH) credits, aligned the major with the new general education program outcomes, provided more flexibility to students in the Public Health Practice concentration, and made it more likely that students who transfer to the major would be able to graduate on time. The revised curriculum, still designed to address CEPH competencies, includes five core courses in public health, one in geographic science, two in biology, one in sociology, one in psychology, and one in exercise and sports science. This curriculum is supported by a set of prescribed courses in the General Education curriculum, including statistics, sociology, economics, ethics, political science, and personal wellness. Students complete their other required general education courses through chosen electives.

A Public Health Internship is the capstone graduation requirement for all PHS majors, typically occurring within the final year prior to graduation. Students with extenuating circumstances may substitute a faculty supervised independent research project in lieu of an internship.

[2] https://ceph.org/about/org-info/criteria-procedures-documents/criteria-procedures/

Detailed learning outcomes are provided in the Assessment Plan (Appendix A). In brief, students develop knowledge and skills as follows:

Core PHS requirements:

PHS2000 Public Health in the United States
PHS2010 Fundamentals of Epidemiology
PHS3000 Environmental Health
PHS3050 Evaluation Methods in Public Health
PHS4500 Public Health Internship
GEOG2400 Intro to Geospatial Technology
BIOL1200 A&P I Anatomy and Physiology I
BIOL1300 A&P II Anatomy and Physiology II
PSY1100 Introduction to Psychology
SOC2720 Medical Sociology
EXSS2400 Health Promotion (or NURS2300 Health Assessment)

Required general education courses (gen ed learning outcome in bold):

Quantitative Reasoning: MATH1700 Applied Statistics
Personal Wellness: EXSS1000 or EXSS2060 or BIOL1650
Ethical Reasoning: PHIL 2001 or PHIL 2500 or BIOL3700
Diverse Perspectives: SOC1100 Introduction to Sociology
Procedural and Logical Thinking: ECON1100 Principles of Macroeconomics
Civic Learning: POLS1000 US Government
Scientific Inquiry: GEOG1000 Earth Systems Science (PHP) or CHEM1200 (EPH)

Courses required for each concentration (students select one concentration):

Environmental Public Health concentration (7 courses, 22 credits)	**Public Health Practice concentration** (7 courses, 21 credits)
GEOG1000 Earth Systems Science **OR** GEOG2003 Environmental Geology GEOG2006 Water Resources and Society GEOG3006 Environmental Policy GEOG3300 Urban Geography GEOG4000 GIS or GEOG4003 GISII or GEOG4001 WebGIS BIOL2700 Medical Microbiology SOC2440 Urban Sociology	PHS4050 Public Health Strategies Choose six courses from: SOC 2250 - Cultural Anthropology SOC 2300 - Sociology of Aging SOC 2440 - Urban Sociology SOC 2500 - Race and Ethnic Relations SOC 2510 - Peoples and Cultures of Africa SOC 2520 - Drugs and Alcohol PSY 1200 - Lifespan Development PSY 2500 - Social Psychology PSY 2665 - Health Psychology PSY2030 Biological Psychology PSY2350 Abnormal Psychology

	PSY3200 Developmental Psychopathology (PSY2350 prereq) PSY3500 Psychology of Learning PSY3530 Motivation POLS 1500 - State and Urban Government POLS 3000 - Public Policy Analysis: Case Studies in American Politics ECON 2140 - U.S. Economic History ECON 2500 - Economic Development ECON 2550 - Urban Economics ECON 2010 - Political Economy of Gender ECON 3001 - Economics of Inequality GEOG3000 – Economic Geography GEOG3300 – Urban Geography GEOG3006 – Environmental Policy GEOG2006 – Water resources and society GEOG2600 Env. Science Data Visualization GEOG4000 GIS or GEOG4003 GISII or GEOG4001 WebGIS GEOG4500 Remote Sensing of the Environment PHS2900 Global Health Study Abroad HMSV2950 Addictive Behaviors

The curriculum is designed to balance a breadth of knowledge about determinants of health (behavioral, biological, environmental, socioeconomic) and depth of knowledge about public health as a discipline and as a practice. The curriculum includes cognate courses from sociology, psychology, economics, political science, and philosophy to ensure foundational knowledge in fields that influence health outcomes. The core introductory course in the curriculum, *Public Health in the US*, establishes foundational knowledge in the historical development and philosophical principles of the discipline and determinants of health. *Epidemiology* introduces students to statistical data used in public health studies (e.g., odds ratio, relative risk), and the *Introduction to Geospatial Technology* course provides an overview of technological tools to view and analyze spatial distribution of public health data. Students build from this foundation in upper division courses, which are focused on planning, assessment, and evaluation of public health interventions (*Evaluation Methods*). In the Environmental Public Health concentration, students further their knowledge of biological and environmental factors that influence health (Medical Microbiology, Water Resources and Society, Urban Geography, Environmental or Urban Sociology) and expand their data analysis skills (GIS). Students in the Public Health Practice concentration further develop knowledge of public health interventions (Public Health Strategies), and tailor their curriculum to strengthen disciplinary knowledge in cognate fields (Geography, Sociology, Psychology, Economics, Political Science), which deepens their knowledge of socioeconomic determinants of health.

1.5. Internal demand of the program/department

Enrollments in courses offered by the department, including physics, has varied between 586 and 808 since AY20 (Appendix B). These numbers account for 2.5-2.9% of total enrollment at the university, which is an increase since our previous review for the EES and GST programs (2.1-2.4% at that time). The number of EES majors has declined from 32 to 26 since AY20. During the past five years, we have had between 6 and 12 students who graduate with a declared minor in Earth Science. Enrollment in the Geographic Science and Technology (GST) major has also declined, from 13 students in AY20 to 3 students in AY24. The number of students enrolled in geospatial minors has varied: between 3 and 9 for GST, between 4 and 10 for GIS, and between 3 and 7 for GIS and Crime Mapping. In contrast to our other two majors, the Public Health Science major has continued to grow since its inception in Fall 2019, from five during AY20 to 34 during AY24. The largest increase has been observed in the past three years after the addition of the Public Health Practice concentration, which has grown from 11 to 30 students in the past three years. The Environmental Public Health minor was added in AY22, and enrollments so far have been low (3 in AY23 and 1 in AY24).

Other programs that use/require PHS courses

Students earning a minor in Psychological Science may use *PHS2010 Epidemiology* as a research methods course.

General education courses

Our department offers more than 20 courses that contribute to the general education requirements, but none of the core public health courses out of our department currently carry a general education designation.

1.6. Recommendations and actions from previous review

This is the first review of the Public Health Science program.

1.7. Program initiatives and change since previous review

This is the first review of the Public Health Science program.

2. Assessment

2.1. Program ingredients

The Public Health Science program is designed to provide students with a breadth of knowledge about determinants of health and depth of knowledge about public health as a discipline and practice, along with a foundation in cognate disciplines. A unique characteristic of our curriculum, and one that sets us apart from public health programs offered at our sister institutions (Worcester State, Bridgewater State), is a strong environmental and geographic science component. The program therefore balances public health knowledge with skill- and project-based learning, which enables students to gain skills that are increasingly in high demand by employers and follows current disciplinary trends. Importantly, much of our project-based learning and field experiences are focused on the Fitchburg region and tied closely to the local community.

2.1.1. Students

Incoming students must meet the admission requirements of the university. The number of majors overall has grown from zero at the program's inception to five in AY20 to 34 in AY24, and we also have one student pursuing the Environmental Public Health minor (Appendix B). Environmental Public Health or Public Health Practice majors account for 54% of the total majors in our department. Freshman applications for the two concentrations within the major ranged from 52 applicants in AY22 to 82 applicants in AY24; however, only three of these applicants enrolled in AY22, one in AY23, and four in AY24. Therefore, our actual incoming freshman class has ranged from one to six students since AY20. In terms of external transfers, three transfer students enrolled in AY23, and one transfer student enrolled in AY24 (see Appendix C for admissions funnel data). Many of our current students arrive as internal transfers from the nursing program: - of the 62 students in public health from 2021-2024, 34 transferred from Nursing. Once students are in our major, we tend to retain them. Our first set of students graduated from the major in AY22 with two Environmental Public Health graduates, two students graduated from the program in AY23 and eight graduated from the program in AY24.

Our students are primarily racial and ethnic minorities, with more females than males. Females accounted for 72 and 85% of majors in AY22 and AY24, respectively. In AY22, three students identified as black, one as Hispanic, one as unknown, two as more than one, and four as white. In AY24, the demographic breakdown included 3% Asian, 45% black, 9% Hispanic, 3% more than one, 6% unknown, and 34% white (see Appendix D for demographic data).

Student involvement in the department happens through curriculum experiences, departmental committees, formal activities, and extracurricular student-run clubs. For example, the department's policy in alignment with the MSCA contract is for two students to serve on our departmental curriculum committee. In addition, we often ask for student volunteers to assist with Admissions events such as Open Houses. Our department has two (inactive) student-run clubs: the Environmental League of Fitchburg (ELF; formerly GeoClub), and the GIS club. Student involvement in both clubs has been variable from year to year. For example, ELF was most active during AY17 and AY18 but has become inactive since the club's recent president graduated. We do not currently have a public health club.

All of our public health majors are required to complete an internship as part of their curriculum; most of these internships occur in our local community. Internship placement has included assisting with local public health agencies and organizations (e.g., CHNA9), non-profit social service agencies (e.g., LUK, NFI, Girls, Inc), or serving in healthcare administrative positions at local hospitals such as Emerson. Internship experiences since AY20 are listed in Appendix E.

2.1.2. Faculty

As of Fall 2024, the department is composed of six full-time faculty members: two physicists, three earth scientists, and one geographer. Three of our full-time faculty members are tenured full professors, two are tenured associate professors, and one is an untenured assistant professor. The department is 67% female and 33% male, ethnically 67% Caucasian and 33% Asian. Faculty qualifications, CVs, and demographic information can be found in Appendix F; brief descriptions of faculty teaching and research follow.

Dr. Elyse Clark, a hydrogeochemist, joined the department in Fall 2018. Her primary teaching responsibilities include Earth Systems Science, Geology, Water Resources and Society, and Environmental Hydrogeology; she has also taught Geomorphology, Environmental Geology, and Soils and the

Environment. Dr. Clark supervised student research as part of the Summer Research Collaborative (SRC), in which students analyzed the hydrogeomorphological characteristics of the Nashua River's tributaries, and has supervised at least one student per semester completing independent research. Dr. Clark's research projects examine the effects of road salt applications on soil, surface water, plant communities, and aquatic macroinvertebrates in local rivers and streams. In addition to road salt research, Dr. Clark works with metal accumulation behind local dams, and has supervised an Honors student working on the impacts of wildfires on soils. Dr. Clark has also collaborated with faculty at UMass Amherst to examine how the weathering of schists in the Fitchburg Complex affects water quality. Currently, Dr. Clark has a collaborative environmental justice grant with the Nashua River Watershed Association and the Environmental Protection Agency working to install nature-based solutions (i.e. green infrastructure) to reduce flooding and heat island effects in environmental justice neighborhoods in Fitchburg.

Dr. Elizabeth Gordon, an oceanographer, joined the faculty in Fall 2007. She teaches our introductory Earth Systems Science course, as well as courses focused on atmospheric and ocean sciences including Oceanography, Meteorology, and Climatology. She and Dr. Ben Lieberman, an historian, co-teach a course entitled Climate Change and Human History. She currently teaches the Environmental Health course, a core public health course for both concentrations; and supervises most of the public health internships. In recent years, her research has been focused on microplastics in the Nashua River watershed, and she is currently collaborating with Dr. Clark and Dr. Picone (Biology) on an EPA environmental justice grant. Connected to her teaching, Dr. Gordon co-authored, with Dr. Benjamin Lieberman from History, a book entitled Climate Change in Human History: Prehistory to the Present.

Dr. Jane Huang, a geographer specializing in Geographic Information Systems (GIS), joined the faculty in Fall 2006. Her teaching focuses on GIS-based courses, including Introduction to Geospatial Technologies, Computer Cartography, GIS, and WebGIS. She also co-teaches GIS for Criminal Justice with Dr. Eileen Kirk from the Criminal Justice program. Dr. Huang has participated in nearly two dozen community-based research grants, with funding ranging from $100 to $360,000. These projects have engaged over 100 students from the department's three majors, as well as related fields such as Computer Science and Criminal Justice. Students utilize GIS, GPS, and other technologies to assist local communities with projects such as mapping hiking trails, neighborhoods, and industrial properties; conducting spatial analyses; and creating traditional and web-based maps. Many of these students have presented their work at the campus-wide Undergraduate Research Conference and some of them presented at regional professional conferences. Currently, Dr. Huang is collaborating with MOC (a Fitchburg-based community organization) and the Fitchburg Senior Center on the Digital Literacy Program. This initiative involves student interns, known as Digital Navigators, who deliver digital literacy training to youth and elderly residents in Fitchburg. In May 2023, Dr. Huang led a group of students on a study abroad program in Peru. The program focused on environmental and public health issues, where students applied GIS and GPS technologies to their studies.

Dr. Reid Parsons, a geologist who specializes in planetary science, joined the faculty in Fall 2013. His primary teaching responsibilities include Earth Systems Science, Geology, Environmental Geology, Geomorphology, and Remote Sensing. He, along with other faculty in the department, rotate the teaching of the Honors Seminar in Environmental Science. Dr. Parsons has experimented with teaching a Data Visualization course and a Planetary Science course and is interested in making them electives within the EGPHS curriculum(s). Dr. Parsons completed a two year appointment as a research professor at the University of Tokyo from 2017-2019, where he split his time between conducting original research and curating exhibits at the "TeNQ" space museum. Dr. Parsons is continuing his research on recent climate change on Mars as a PI on a 3-yr NASA grant (2022-2025) and has involved several

undergraduate students as research assistants on the project. Dr. Parsons has maintained NASA research funding throughout his career at Fitchburg and has involved 9 current or former students on 3 different grant-funded projects. Since 2016 he has published four papers (three as first author) in peer-reviewed journals, given seven professional conference presentations (three as an invited speaker), served on a NASA grant selection panel, and as a peer reviewer for three manuscripts submitted to the International Journal of Glaciology.

Dr. Jared Vanasse, a physicist, joined the faculty in 2020. He teaches introductory physics courses, astronomy, an energy course, and calculus based physics courses through directed studies. His research is focused on the use of effective theories for few body systems, in particular few nucleon systems investigating the violation of fundamental symmetries. Dr. Vanasse also serves as an adjunct professor at Duke University where he does research with graduate students in addition to serving on Ph.D. thesis defense committees. He has also advised an Honors student at Fitchburg State on a research project examining beach erosion. During his time at Fitchburg he has published six manuscripts in peer reviewed journals and gave three talks at professional conferences (one invited).

Dr. Jiang Yu, a physicist, joined the faculty in Fall 1996. She teaches introductory physics courses and offers directed study to students for upper level physics courses. As a physics educator, she has worked for the Educational Testing Service in creating and scoring of the annual AP Physics Exams since 2000, in which she has served various leadership roles including one term of Chief Reader from 2009 to 2013, which is the highest leadership position in the AP Physics program. In this position, she was in charge of setting the scoring rubric standards, leading the scoring operations, and participating in the AP Physics Score Reporting standard settings with the ETS and the College Board components. For the AP Physics curricula (four courses), she has worked with the College Board physics group for over 27 years, serving as an CB endorsed physics workshop consultant and a senior Curriculum Auditor and Curriculum Adviser for the Board's AP Physics Syllabi Audit program. In these capacities, she has each year led multiple week-long Advanced Placement Summer Institutes for high school physics teachers in the US and abroad and offered consultation to schools and teachers worldwide in the improvement of their AP Physics courses and teaching.

2.1.3. Staff

Our department is supported by a shared administrative assistant (with the department of Biology/Chemistry), Ms. Lindsey Babineau. She is responsible for daily administrative operations, which includes interfacing with students, faculty, staff, and external constituents. She manages the departmental budget, initiating and tracking purchases as well as running financial reports. Ms. Babineau is responsible for entering the departmental course schedule each year, and assisting with edits to the schedule each semester. She assists with a range of other occasional tasks, from assisting the department chair with scheduling rooms and catering for special events to maintenance of the departmental website.

Our department is also supported by a shared laboratory technician (with Chemistry). Currently, we are in the search for a replacement as our previous technician left the position in September 2024. The replaced lab technician will be in charge of maintaining our laboratory spaces, helping purchase, inventory, and repair equipment and apparatus, assisting Physics faculty on the weekly lab preparation, and working with the Earth Science faculty on their courses/research when needed. Up to 50% of the technician's time will be devoted to our department.

2.1.4. Resources

2.1.4.1. Financial

The department's fiscal annual budget, detailed in Appendix G, covers expenses for all of our programs and has varied from $9025 in 2020, decreasing to $8,921 in 2024/25, owing to budget cuts across the University. The Public Health program requires very little of the department's budget as much of it is in support of physics and geoscience lab supplies and equipment. In addition to the operational budget, each department is awarded travel funds from the administration: $321 per FT faculty member in the 2024/25 academic year. The department is typically awarded funds for one work study student each year. We often request additional strategic funds for extraordinary expenses such as large equipment purchases. Faculty have the opportunity to apply for internal grants to support professional development activities and to supplement travel expenses. We have also benefited from external grant support in recent years, including a $179,000 3yr NASA award to Reid Parsons, and a $125,000 2yr award to Jane Huang through the Massachusetts Technology Collaborative. As of FY24, those grants had generated $9561 in indirect funds to the department.

2.1.4.2. Space

The department has two dedicated classrooms for Earth Science lab courses: SCI120 (the "wet" lab) and 124 (the "dry" lab); the room between those two (SCI122) is the preparation area for those labs. Our computer lab, SCI127, is intended for courses that require computer access, including GIS-based courses, Remote Sensing, and Astronomy. Other lab courses, such as Geology, Meteorology, and Oceanography, make use of the computer lab for instruction with spreadsheet and graphing applications. The server to which those computers connect contains industry-standard software, including ArcGIS Pro, Google Earth Pro, and ENVI. The Information Technology office on campus provides exceptional support for our computer applications.

Physics instruction takes place in SCI 350, 339 and 242. Laboratory and demonstration equipment is stored in the prep rooms adjoining the classrooms (348, 337 and 240, respectively) and in the physics storage room, 316. Additional storage space for the department as a whole is in 125, with specialized spaces for Electronics (126) and the 'Dirty Rock' room (SCI128), which houses our rock tumbler. Our department has shared access to the field/mud room, SCI131.

The department has three research spaces: SCI129 is the aquatic geochemistry lab, shared between Drs. Clark and Gordon; SCI317 is the geospatial research lab, shared between Drs. Huang and Parsons; and SCI319 is designed as a physics research space, currently in use by Dr. Steven Fiedler (Chemistry).

All full-time faculty members have their own offices on the second and third floors of the Science building. The department chair office is located in SCI220, which is a suite of two offices (one for the EGS Department chair and one for the Biology/Chemistry Department chair) along with the shared administrative assistant. There is one departmental adjunct office, and one shared (with Biology/Chemistry) adjunct office with six desks.

The department maintains a "Resource Room" (SCI118) for students. The room contains a couple of tables with chairs so that students can meet there to study. Faculty have donated geoscience and physics textbooks to the Resource Room for student use as well.

2.1.4.3. Equipment

The department maintains geoscience and physics equipment for teaching and research (Appendix H).

2.1.4.4. Library

Library resources to support the Public Health program are outlined in Appendix J.

2.2. Program processes

2.2.1. Curriculum

2.2.1.1 Curriculum development

Curriculum development in the department is generally initiated by a faculty member, informed by discipline trends and areas of expertise. For example, Dr. Clark has developed two new courses to address curriculum gaps in the EES major, and that tie to her areas of expertise, one focused on water resources and one on soils. Her Water Resources and Society course has been folded into the Public Health Science curriculum as well.

To offer a new course, it is common practice for a faculty member to offer a course once or twice as a 'topics' course, after discussion with the curriculum committee and approval by the Department Chair and Health and Natural Sciences (HNS) Dean. If there is enough interest in the course from students and support from the department, the faculty member proposes the course for formal addition, first by approval through the department's curriculum committee and then through the University's governance process. The inclusion of new courses in the curriculum undergoes the same approval process.

2.2.1.2. Curriculum deployment

To meet the needs of students to navigate the required Public Health Science curriculum as outlined in section 1.4, the following is suggested as a four year plan.

	Fall	Spring
Year 1	First Year Seminar Writing I Applied Statistics Anatomy and Physiology I Public Health in the US	Earth Systems Science Writing II Introduction to Sociology Anatomy and Physiology II Gen ed/WS
Year 2	Epidemiology Introduction to Psychology US Government Personal Wellness elective Major elective (PHP); Chem for Health Sciences (EHP)	Intro to Geospatial Technologies Health Promotion Principles of Macroeconomics Ethics elective Major elective (PHP); Medical Micro (EPH)

Year 3	Medical Sociology Major electives (2, PHP); Urban Geography (EPH) Gen ed/exploration Gen ed/integration or minor	Environmental Health Evaluation Methods in Public Health Major elective (PHP): Water Resources (EPH) Gen ed/exploration Gen ed/integration or minor
Year 4	Public Health Strategies (PHP) Major elective (PHP); GIS (EPH) Gen ed/exporation Gen ed/IHIP or minor Free elective or minor course	Public Health internship Urban Sociology (EPH) Free electives or minor courses

To ensure that students are able to meet program requirements in a timely manner (ideally four years), we schedule courses on the following two year rotation:

Year	Fall	Spring
Every semester	Earth Systems Science Intro to Geospatial Tech Public Health in the US	Earth Systems Science Intro to Geospatial Tech Public Health in the US
Yearly	Epidemiology Public Health Strategies Urban Geography	Evaluation Methods in Public Health Environmental Health GIS Water Resources and Society
Even-odd	Climate Change & Human Hist	Global Health Study Abroad
Odd-even	Remote Sensing	Peru study abroad

Required courses have typically been offered either every semester or every year, and electives offered within our department are scheduled such that at least one elective option is offered each semester. Although the specific scheduling of courses from other departments is beyond our control, the broad range of electives provides enough flexibility that students are able to fulfill requirements for the major.

2.2.1.3. Internships

Lacking a dedicated internship coordinator, students typically find internship opportunities on their own. We have collaborated with Career Services and Advising to improve our ability to support students as they search for internships. Some faculty in the department have completed their Career Champions program, which provides training to faculty and staff regarding career and internship opportunities for students. Occasionally a community member reaches out to a faculty member to request an intern for their organization. Dr. Huang has developed many community partnerships, so it is common for a city or local organization to contact her when they have a GIS need, which may be suitable for our Environmental Public Health majors.

Once a student is ready to pursue an internship, they must submit paperwork to the faculty supervisor, who assists them in registering for the Internship course. The department adheres to the University's

Internship policy[3], in that the faculty supervisor must perform at least one site visit during the internship period and communicate with the site supervisor regarding student performance and progress. The site supervisor submits a mid-term and final evaluation, and the student must complete both a written and oral report on their internship results and experience. A list of recent internship experiences can be found in Appendix E.

2.2.2. Student learning and supports

Our students range from strong academically to those who arrive on campus underprepared for college level work. The students who transfer into our program from other majors often do so because they could not maintain a required GPA or other progress metric in their original major; many of our current students came to us from Nursing (34 of the 62 students in Public Health from Fall 2021 to present came to the major from Nursing). The tutor center offers free academic assistance for students. Some of the required cognate courses for the major, such as Anatomy and Physiology, have embedded peer tutors that can improve student outcomes in the course.

As a small department, faculty are able to develop strong relationships with students and most faculty have adopted strategies that would be characterized as 'intensive advising'. We consistently discuss student challenges as a department and collaborate on potential solutions. Despite this, we recognize the need to host more community building events within the department, and are developing plans to do so. Beyond the department, the University provides an array of student support services, including a Counseling Services Center that offers free mental health assistance to students and a Community Assistance and Risk Evaluation (CARE) team that facilitates wrap-around services for students experiencing any number of concerns, from mental health to housing and food assistance.

2.2.3. Faculty

2.2.3.1. Teaching responsibilities

Faculty have shared responsibility for teaching introductory courses and often take primary responsibility for upper division courses. Teaching responsibilities are detailed in Appendix F. As noted previously, adjuncts and faculty from other departments teach our Public Health Science core courses. Nursing faculty often teach our introductory *Public Health in the US* course, which provides continuity for the many students who transfer to public health from nursing. Our Public Health adjunct has been teaching with us each semester for three years, so there is consistent coverage of our public health courses.

2.2.3.2. Advising responsibilities

Advising for our students is shared among faculty in the department. Most of the Geographic Science and Technology students are advised by Dr. Huang, while the Environmental and Earth Science students are advised by Drs. Clark, Gordon, Parsons, and Vanasse. All faculty share in advising Public Health Science students. Advising platforms including Degreeworks, Student Success Collaborative (SSC), and College Scheduler, are used by faculty and students alike to strengthen our advising capabilities. The Career Services and Advising Center (CSA) on campus provides additional resources for advising; collaboration with CSA with support from the Davis Foundation led to the development of a Career Action Plan for public health students (Appendix I).

[3] https://catalog.fitchburgstate.edu/content.php?catoid=36&navoid=2283#Internship_Policy

2.2.3.3. Faculty retention

The University has a formal new faculty mentoring program, which is designed to address faculty retention. New faculty attend a "New Faculty Academy" upon their arrival at Fitchburg State, and participate in workshops throughout their first year, focused on topics such as advising. As a collegial department, we work to ensure that new faculty have the resources that they need. We have retained all of our faculty members through retirement for the past 20+ years.

2.3. Program outcomes

2.3.1. Student learning outcomes

The following section is taken from the Public Health Science Assessment Plan, which is included in full as Appendix A.

Students in the Public Health Science program learn fundamental concepts, principles, and analytical methods used in the public health field. There are two concentrations within the Public Health Science major: Environmental Public Health and Public Health Practice. The Environmental Public Health concentration focuses on a scientific approach to examining human health, environmental challenges, and how the interaction between humans and their surroundings influences health outcomes. The Public Health Practice concentration focuses on socioeconomic determinants of health and strategies to improve health outcomes.

Students who earn a major in Public Health Science will demonstrate a scientific understanding of human health and how socioeconomic and environmental variables influence health outcomes, and develop statistical and analytical skills to evaluate public health concerns. They will be able to distinguish between science and non-science, support arguments with evidence, communicate their ideas effectively, and explain the necessity and characteristics of an interdisciplinary approach to solving public health issues.

In particular, Public Health Science students will:

- discuss the history and philosophy of public health.
- use appropriate methods and tools to analyze public health data and will discuss the importance of evidence based approaches.
- explain the science of human health and disease, and discuss opportunities for promoting health.
- describe the socioeconomic, behavioral, biological, and environmental factors that affect human health.
- discuss the fundamental concepts and features of project planning, assessment, and evaluation
- describe the characteristics of health systems in the US as well as other countries
- explain the basic concepts of, and responsibilities of government in, the legal, ethical, economic, and regulatory dimensions of public health policy
- describe fundamental scientific principles related to environmental health
- explain how the built environment influences human health and contributes to health disparities
- synthesize evidence from various sources to address environmental and public health issues

These outcomes are addressed in the following courses:

Program learning outcome Students will:	**Core Courses**	**Concentration specific courses**
- discuss the history and philosophy of public health.	Public Health in the US	
-use appropriate methods and tools to analyze public health data and discuss the importance of evidence based approaches.	MATH 1700 Applied Stats PHS2010 Epidemiology GEOG 2400 Intro to Geospatial Tech. PHS3050 Evaluation methods	GIS (EPH)
-explain the science of human health and disease, and discuss opportunities for promoting health.	BIOL 1200 BIOL 1300 EXSS 1000 Health and Fitness EXSS2400 Health Promotion or NURS2300 Health Assessment	BIOL 2700 Medical Microbiology (EPH)
-describe the socioeconomic, behavioral, biological, and environmental factors that affect human health.	PSY 1100 SOC 1100 SOC 2750 Medical Sociology PHS3000 Environmental Health	CHEM1200 Chem for health sciences (EPH) ECON electives (PHP) SOC electives (PHP) PSY electives (PHP) GEOG (both)
-discuss the fundamental concepts and features of project planning, assessment, and evaluation	PHS3050 Evaluation Methods in Public health	Public Health Strategies (new, PHP)
-describe the characteristics of health systems in the US as well as other countries	PHS2000 Public Health in the US	Public Health Strategies (new, PHP)
-explain the basic concepts of, and responsibilities of government in, the legal, ethical, economic, and regulatory dimensions of public health policy	POLS 1000 US Government PHIL 2001 Medical Ethics *or* PHIL 2500 Contemporary Ethical Problems or BIOL3700 Bioethics ECON1100 Principles of Macroecon	POLS electives (PHP) GEOG3006 Environmental Policy (EPH)
-describe fundamental scientific principles related to environmental health	GEOG 1000 Earth Systems Science or GEOG2003 Environmental Geology PHS3000 Environmental Health	GEOG2006 Water Resources and Society (required for EPH; elective for PHP)
-explain how the built environment influences human health and contributes to health disparities	GEOG3300 Urban Geography SOC 2440 Urban Sociology	
-synthesize evidence from various sources to address environmental and public health issues	EPH3000 Environmental Health EPH3050 Evaluation Methods Internship	

2.3.2. Assessment summary

Assessment data for the Public Health Science program has been collected for the past three years. Enrollments in public health courses in the two years prior to that were too low to generate reliable assessment data. Note that only four of the ten outcomes have so far been assessed in the past three years. This is primarily due to the fact that most of our core public health courses are taught by adjunct faculty members or faculty from different departments.

SLO4: Students will describe the socioeconomic, behavioral, biological, and environmental factors that affect human health.

Students were assessed on this outcome in Environmental Health, offered Fall 2022 and Spring 2024. The outcome was evaluated in Fall 2022 using an assignment that focused on the connections between environmental pollutants and human health/disease. The average score for the assignment was 92%, and all PHS students (7 of 7) scored at least 80% on this assignment. The results of this assessment indicate that all students are meeting the metric for this outcome. That said, the assignment could be refined to more specifically target the LO - the assignment grade included questions that were less descriptive in nature, and are not capturing the outcome specifically.

This outcome was again assessed in Spring 2024, this time using the final paper for Environmental Health. The scoring of the paper is completed using a rubric, and one criterion on the rubric is specially to address the effect of environmental variables on health outcomes (on a scale of 1-4). The target, set by the instructor, was for 80% of students to score at least 3 of 4 on this criterion, but only 74% of students scored 3 or above. Additional practice describing factors that influence health will be built into the course.

SLO6: Students will describe the characteristics of health systems in the US as well as other countries

Students were assessed on this outcome in PHS2000 Public Health in the US in Spring 2021 using their score on a quiz focused on health systems. Seven of the eight students in the course scored at least 75% on the quiz.

SLO8: Students will describe fundamental scientific principles related to environmental health

This outcome was assessed in PHS3000 Environmental Health in Spring 2024. The average grade of four assignments for the course was used to assess the degree to which students are meeting the outcome, with the target of 80% of students earning at least an 80% average. Ninety-two percent of students scored at least 80%.

SLO10: Students will synthesize evidence from various sources to address environmental and public health issues

This outcome is assessed in PHS3000 Environmental Health, using the final project for the course. Assessment data from Fall 2022 indicated that 57% (4 of 7) PHS students had a sufficient understanding of the topic addressed, 42% (3 of 7) PHS students used relevant information appropriately, including selection of sources and proper citation, and 42% (3 of 7) PHS students demonstrated proficiency in using data to support their argument.

In the Spring 2024 offering of the course, only 32% of students demonstrated proficiency at synthesizing public health information. Anecdotally this appeared to be due in part to lack of understanding of integrating library resources into a major subject area.

The instructor will scaffold the final project such that sections of the project are completed throughout the semester, as opposed to one final project at the end of the course. Additional opportunities for students to engage in the environmental health literature (relevant sources) will also be folded into assignments throughout the semester. More information literacy activities, including a library session, will be incorporated into the course (planned for Spring 2025)

2.3.3. Other measures of student success

The University surveys alumni to gather information about post-graduate employment, education, and other activities. The response rate for alumni in our department has been very low, so we are not able to reflect on alumni data at this time.

3. Analysis and action plan for the future

This is a preliminary action plan written as part of our self-study. We anticipate that the action plan will evolve with additional input from our external reviewer and the college administration. Please note also that this program is only five years old, and several of our action items address continued growth of a new program.

3.1. Strengths and opportunities to build on strengths

Enrollments have increased substantially since the inception of the program, which led to the approval of a **faculty hire** of a temporary, full-time position in public health for our department. We can continue to expand interest in the major, using the increased enrollment to improve the overall recognition of our program on campus and through further engagement of our students in the community while completing internships.

Strengths within our department stem from the individual **personnel expertise** available; however, these strengths pertain more to the Environmental Public Health concentration. For example, we have numerous classes taught by Dr. Jane Huang to build geospatial skills, which are valuable analytical tools for public health careers. We have environmental expertise that has been utilized to include more public health-based content in courses such as Water Resources and Society, Environmental Geology, and Earth Systems Science.

One of the strengths that comes from having a small department is the ability to provide a **student-centered learning and advising** experience due to smaller class sizes and a smaller student-faculty ratio. Because many of our students become public health majors after being released from nursing, exercise and sports science, or biology, strong faculty **advising** can help ensure that students remain on track for timely graduation. In addition to departmental advising, sufficient campus infrastructure exists for directing students to our major from other departments, particularly by the Health Professions Advising. The addition of a faculty member with a public health background will strengthen our advising capabilities within the department.

Our department has strong **collaborations with other departments** on campus. This enables us to integrate courses from relevant disciplines (e.g. Sociology, Biology, Economics, Psychological Science) into the major, allowing the students to tailor their curriculum to their personal interests, and has resulted in many of our public health students declaring minors in those disciplines. This collaboration has also allowed the establishment of an interdepartmental **public health curriculum advisory group**, which provides guidance on curricular revisions for the major. We have also collaborated with Career

Services and Advising to improve our ability to support students as they search for internships, and to develop a career action plan for the Public Health major (Appendix I).

Faculty in EGPHS and Nursing offer **study abroad** opportunities with emphasis on public health. Dr. Huang offers *Environmental Mapping of Peru*, which includes a 10 day trip to Peru. Drs. Deb Stone and Debbie Benes of Nursing offer a Global Public Health study abroad course, which includes a 10 day trip to Costa Rica.

Faculty within our department have established relationships with various community partners that enable internship opportunities locally, but these community connections could be expanded in the future. The department will work on **establishing new connections within the community** to provide more opportunities for our majors. We anticipate that the new public health faculty member will also help to establish connections with the community and help to point our students in the right direction due to their familiarity with the overall field of public health.

3.2. Areas of, and strategies for, improvement

Public Health expertise

First and foremost, our department does not currently have a public health scientist. Increasing enrollments allowed the administration to approve a new full-time non-tenure-track position beginning in Fall 2025. Due to this lack of expertise within our department, it has been challenging to advise students within the public health major appropriately and assist with internship placement. Furthermore, without this expertise, we either have departmental faculty teaching courses about public health, which is outside of their normal area of expertise, or we rely on adjunct faculty and faculty from cognate departments (e.g., Nursing) to teach our public health courses. This has led to limitations in advising students and in assessing the program.

Action: Hire a full time, tenure track faculty member in public health

Timeline: A search for a non-tenure track faculty member should result in a hire for Fall 2025. We hope to have a tenure track line by Fall 2028 at the latest.

Enrollments

While we are pleased with our enrollment trend overall, we continue to see low numbers of incoming freshman and external transfers who declare PHS as their major. We recognize the need for additional recruitment efforts and articulation agreements. We have one articulation agreement in place with Mount Wachusett Community College through their Allied Health Program, and will explore opportunities to add others.

Action: Increased recruitment of new and external transfer students

Timeline: The department will work with the Early College office in AY25 and 26 to encourage dual enrollment students to take our introductory Public Health course (PHS2000). We will continue to explore additional articulation agreements with local community colleges over the next couple of years.

Curriculum and assessment

The new **general education** curriculum went into effect in Fall 2021. None of our core public health courses carry a gen ed designation.

Action: Examine PHS course outcomes to identify alignment with gen ed outcomes.

Timeline: EGPHS faculty, ideally with a new public health hire, will examine outcomes and prepare AUC proposals for submission during AY25.

The curriculum revision that occurred in AY21 resulted in a more streamlined curriculum, but gaps remain in areas such as health communication and global health. In addition, the CEPH standards with which our curriculum is aligned were recently updated (2024). With the addition of a public health faculty member, we anticipate identifying and then rectifying additional gaps in the curriculum.

Action: Update assessment plan to align with the new CEPH standards, streamline outcome targets, and update curriculum accordingly.
Timeline: EGPHS faculty will update the PHS assessment plan in AY25 and examine courses in the curriculum. With input from a new faculty member with public health expertise, we will put through governance new courses and curricular revisions in AY26.

Action: Explore procedure to obtain program accreditation from the Council on Education for Public Health
Timeline: After revisions to the curriculum to align with the most recent CEPH standards and successful hire of a full time public health faculty member, EGPHS faculty will evaluate benefits of seeking accreditation for our public health program.

Although the advising infrastructure to take in students that have been released from other departments is in place, students often struggle with the abrupt transition from one department to another and take some time to find their footing in our program. More specifically, students find it challenging to have to transition to taking geography-based courses focused on Earth science or geospatial technology when previously being enrolled in nursing. Students that join our major from another department consistently struggle in the required introductory courses, GEOG1000 (Earth Systems Science) and GEOG2400 (Intro to Geospatial Technology). If these students proceed to upper-level GIS courses, they are likely to encounter similar difficulties. The advanced GIS courses (GEOG4000, 4001, 4003) cater to all three departmental majors and focus on developing in-depth spatial analytical skills. There is concern that the learning pace of PHS students could potentially impact the progress of EES and GST students.

Action: Improve student success in introductory courses
Timeline: Faculty will discuss ways of integrating some public health based content into the introductory courses to help pique the student's interest. For example, when discussing volcanoes in GEOG1000, a small section of the class could be devoted to discussing the medical and/or public health impacts of volcanic eruptions. For geospatial technologies, the department will discuss the creation of a new 3000-level GIS course tailored specifically for PHS students.

As indicated in our assessment summary, there are some **key skills** that our students should further develop, such as information literacy.

Action: Examine the curriculum holistically to identify courses in which students are introduced to and further develop throughout the curriculum. Collaborate with the library and other departments to support skill development and mastery.

Timeline: Faculty will connect key skills to the curriculum modifications discussed above during AY25, and foster relevant collaborations beginning AY26.

<u>Strengthening community</u>

While the department has had an active student club in the past, the department lacks a consistent offering of extracurricular activities and no current club exists with a public health focus. We recognize the benefit of hosting regular social and outreach events as a means to develop a stronger sense of community for students in the department. Particularly considering the difficult transition for our students that are released from a different department, our department could host an event early on in the semester to welcome new internal transfer students into the major and discuss opportunities in the public health field. The department could also try to establish peer-mentor groups or cohort groups of new majors to establish a welcoming environment for the new majors. We will work with current students to gauge interest in creating a student club with a public health focus. We will also begin to organize more social and outreach events throughout the year.

Action: Organize monthly activities for both faculty and students, gauge interest in a student group, and evaluate the feasibility of a peer mentoring program

Timeline: Develop a plan for activities during fall 2025; hold at least two department events during spring 2026. Plan welcoming activities for new students at the beginning of each semester.

3.3. Resources to accomplish the plan

Some of the recommendations listed above will not require substantial financial resources. To achieve all of the above, additional financial resources include a tenure-track faculty hire and support for our administrative assistant.

The department needs a faculty member with expertise in public health. We just concluded a failed search for a Visiting Assistant Professor. While we have been able to piece together coverage of our public health courses with adjuncts and faculty from other departments (Nursing), a tenure-track faculty member would support our department and the development of our students overall. Public Health expertise will be needed if the department chooses to seek accreditation for our public health program. As a small department, we are stretched in our efforts to participate in important initiatives on campus, such as the First Year Experience, the University Assessment Committee, and various governance committees, while also providing participatory experiences and advising for our students. The growth of the public health program will continue to be limited without a dedicated faculty member.

Our current administrative assistant is shared with Biology/Chemistry, which is a large enough department to warrant its own administrative assistant. The workload on our current admin is therefore in excess of most comparable staff members on campus. We seek additional administrative staff to support the work of the department.

3.4. Action plan in table format

Specific area where improvement is needed	Evidence to support the recommended change	Person(s) responsible for implementing the change	Timeline for implementation	Resources needed	Assessment Plan
Expertise	no public health expertise in department	Administration	new TT line by Fall 2028	faculty line	successful hire
Enrollments	First year and external transfer enrollments remain low	All faculty	Begin AY25	Time	Increased enrollments
Curriculum and assessment	Lacking gen ed designations for PHS courses; Gaps in major courses; CEPH standards updated; student struggles in courses	All faculty	AY25 – Update assessment plan, examine curriculum for gaps, proposals for gen ed designations AY26 – add/modify major courses as needed AY25-26– discuss and implement changes to intro courses; explore accreditation procedures AY27 - evaluate	Time	Addition of key courses to curriculum; Gen ed designations for some PHS courses; update of assessment plan; updates to, or development of new, introductory courses
Strengthen community	Limited sustained opportunities for student extracurricular engagement; student difficulty when transferring	All faculty	AY25 – planning AY26 – hosting events AY27 – potential establishment of new student club	Time	Number of planned departmental events; attendance at said events

	from other programs				

Appendix A. **Public Health Science Curriculum and Assessment**

I. Catalog description of major requirements

Core Requirements (11 courses, 35 credits)
PHS 2000 - Public Health in the United States 3 cr.
PHS 2010 - Fundamentals of Epidemiology 3 cr.
PHS 3000 - Environmental Health 3 cr.
PHS 3050 - Evaluation Methods in Public Health 3 cr.
PHS 4500 - Public Health Internship 3 cr.
GEOG 2400 - Introduction to Geospatial Technologies 3 cr.
BIOL 1200 - Anatomy and Physiology I 4 cr.
BIOL 1300 - Anatomy and Physiology II 4 cr.
PSY 1100 - Introduction to Psychological Science 3 cr.
SOC 2720 - Medical Sociology 3 cr.
EXSS 2400 - Health Promotion 3 cr. or
NURS 2300 - Health Assessment 3 cr.

Required general education courses
MATH 1700 - Applied Statistics 3 cr.
EXSS 1000 - Health and Fitness 3 cr. or
EXSS 2060 - Exercise, Nutrition, and Heart Disease 3 cr. or
BIOL 1650 - Nutrition 3 cr.
PHIL 2001 - Medical Ethics 3 cr. or
PHIL 2500 - Contemporary Ethical Problems 3 cr. or
BIOL 3700 - Bioethics 3 cr.
SOC 1100 - Introduction to Sociology 3 cr.
ECON 1100 - Principles of Economics: Macroeconomics 3 cr.
POLS 1000 - United States Government 3 cr.
GEOG 1000 - Earth Systems Science 3 cr. (PHP)/CHEM1200 Chemistry for Health Sciences 4 cr. (EPH)

Public Health Practice Concentration (7 courses)
PHS 4050 - Public Health Strategies 3 cr.

Select six courses from the list below:
SOC 2250 - Cultural Anthropology 3 cr.
SOC 2300 - Sociology of Aging 3 cr.
SOC 2440 - Urban Sociology 3 cr.
SOC 2500 - Race and Ethnic Relations 3 cr.

SOC 2510 - Peoples and Cultures of Africa 3 cr.
SOC 2520 - Drugs and Alcohol 3 cr.
PSY 1200 - Lifespan Development 3 cr.
PSY 2500 - Social Psychology 3 cr.
PSY 2665 - Health Psychology 3 cr.
PSY 2030 - Biological Psychology 3 cr.
PSY 2350 - Abnormal Psychology 3 cr.
PSY 3200 - Developmental Psychopathology 3 cr.
PSY 3530 - Motivation 3 cr.
PSY 3500 - Psychology of Learning 3 cr.
POLS 1500 - State and Urban Government 3 cr.
POLS 3000 - Public Policy Analysis: Case Studies in American Politics 3 cr.
ECON 2140 - U.S. Economic History 3 cr.
ECON 2010 - Political Economy of Gender 3 cr.
ECON 2500 - Economic Development 3 cr.
ECON 3001 - Economics of Inequality 3 cr.
GEOG 2006 - Water Resources and Society 3 cr.
GEOG 3000 - Economic Geography 3 cr.
GEOG 3006 - Environmental Policy 3 cr.
GEOG 3300 - Urban Geography 3 cr.
GEOG 2600 - Environmental Science Data Visualization 3 cr.
GEOG 4000 - Geographic Information System 3 cr. or
GEOG 4001 - Web GIS 3 cr. or
GEOG 4003 - Geographic Information Systems II 3 cr. or
GEOG 4500 - Remote Sensing of the Environment 3 cr.
PHS 2900 - Global Health (Study Abroad) 3 cr.
HMSV 2950 - Addictive Behaviors 3 cr.
Note: No more than three courses can be selected from any one discipline.

Environmental Public Health (7 courses)

GEOG 1000 - Earth Systems Science 3 cr. or
GEOG 2003 - Environmental Geology 3 cr.
GEOG 2006 - Water Resources and Society 3 cr.
GEOG 3006 - Environmental Policy 3 cr.
GEOG 3300 - Urban Geography 3 cr.
GEOG 4000 - Geographic Information System 3 cr. or
GEOG 4003 - Geographic Information Systems II 3 cr. or
GEOG 4001 - Web GIS 3 cr.
BIOL 2700 - Medical Microbiology 4 cr.
SOC 2440 - Urban Sociology 3 cr.

II. Assessment Plan

Students who earn a major in Public Health Science will demonstrate a scientific understanding of human health and socioeconomic and environmental variables that influence health outcomes, as well as develop statistical and analytical skills to evaluate public health concerns. They will be able to distinguish between science and non-science, support arguments with evidence, communicate their ideas effectively, and explain the necessity and characteristics of an interdisciplinary approach to solving public health issues.

In particular, students will:

- discuss the history and philosophy of public health.
- use appropriate methods and tools to analyze public health data and will discuss the importance of evidence based approaches.
- explain the science of human health and disease, and discuss opportunities for promoting health.
- describe the socioeconomic, behavioral, biological, and environmental factors that affect human health.
- describe the characteristics of health systems in the US as well as other countries
- explain the basic concepts of, and responsibilities of government in, the legal, ethical, economic, and regulatory dimensions of public health policy
- describe fundamental scientific principles related to environmental health
- explain how the built environment influences human health and contributes to health disparities
- synthesize evidence from various sources to address environmental and public health issues

Curriculum map:

Program learning outcome Students will:	**Core Courses**	**Concentration specific courses**
- discuss the history and philosophy of public health.	Public Health in the US	
-use appropriate methods and tools to analyze public health data and discuss the importance of evidence based approaches.	MATH 1700 Applied Stats PHS2010 Epidemiology GEOG 2400 Intro to Geospatial Tech. PHS3050 Evaluation methods	GIS (EPH)
-explain the science of human health and disease, and discuss opportunities for promoting health.	BIOL 1200 BIOL 1300 EXSS 1000 Health and Fitness EXSS2400 Health Promotion or NURS2300 Health Assessment	BIOL 2700 Medical Microbiology (EPH)
-describe the socioeconomic, behavioral, biological, and environmental factors that affect human health.	PSY 1100 SOC 1100 SOC 2750 Medical Sociology PHS3000 Environmental Health	CHEM1200 Chem for health sciences (EPH) ECON electives (PHP) SOC electives (PHP) PSY electives (PHP) GEOG (both)
-discuss the fundamental concepts and features of project planning, assessment, and evaluation	PHS3050 Evaluation Methods in Public health	Public Health Strategies (new, PHP)

-describe the characteristics of health systems in the US as well as other countries	PHS2000 Public Health in the US	Public Health Strategies (new, PHP)
-explain the basic concepts of, and responsibilities of government in, the legal, ethical, economic, and regulatory dimensions of public health policy	POLS 1000 US Government PHIL 2001 Medical Ethics *or* PHIL 2500 Contemporary Ethical Problems or BIOL3700 Bioethics ECON1100 Principles of Macroecon	POLS electives (PHP) GEOG3006 Environmental Policy (EPH)
-describe fundamental scientific principles related to environmental health	GEOG 1000 Earth Systems Science or GEOG2003 Environmental Geology PHS3000 Environmental Health	GEOG2006 Water Resources and Society (required for EPH; elective for PHP)
-explain how the built environment influences human health and contributes to health disparities	GEOG3300 Urban Geography SOC 2440 Urban Sociology	
-synthesize evidence from various sources to address environmental and public health issues	EPH3000 Environmental Health EPH3050 Evaluation Methods Internship	

Appendix B. **Enrollment in Environmental, Geographic, and Public Health Sciences**

Earth & Geographic Sciences Departmental Trend Data

Day-School

	AY 14	AY 15	AY 16	AY 17	AY 18	AY 19	AY 20	AY 21	AY22	AY23	AY24	Trend
Environmental Public Health							8	8	26		0	
First Year Experience									35	18	19	
Geography	466	526	421	470	483	523	507	440	341	349	391	
Honors									18		0	
Physics	325	210	302	299	325	322	287	231	197	159	162	
Public Health Sciences									2	60	95	
Total Enrollment in Earth & Geographic Sciences classes	**791**	**736**	**723**	**769**	**808**	**845**	**802**	**679**	**619**	**586**	**667**	
Total Enrollment in All Classes	33,952	34,081	34,062	34,169	34,257	33,695	31,983	27,491	24,227	23,044	23,252	
Percentage of total enrollment: Earth & Geographic Sciences classes	**2.33%**	**2.16%**	**2.12%**	**2.25%**	**2.36%**	**2.51%**	**2.51%**	**2.47%**	**2.56%**	**2.54%**	**2.87%**	
												#N/A
Graduates in the Major	**5**	**6**	**2**	**4**	**11**	**8**	**19**	**9**	**9**	**3**	**15**	
Percentage of overall graduates	**0.62%**	**0.83%**	**0.27%**	**0.51%**	**1.46%**	**1.09%**	**2.40%**	**1.30%**	**1.42%**	**0.63%**	**3.20%**	
												#N/A
Environmental & Earth Science, B.S.	4	5	1	1	8	6	15	9	4	0	7	
Geographic Science & Technology, B.S.	1	1	1	3	3	2	5	0	3	1	0	
Environmental Public Health, B.S.									2	2	2	
Public Health Practice, B.S.											6	#N/A
												#N/A
Graduates in the Minor												#N/A
ENPH Environmental Public Health										0	0	
ERTH Earth Science	2	3	2	3	4	0	5	1	4	6	2	
GIS Geographic Information Systems	1	4	1	2	4	5	0	1	1	0	3	
GEOE Geographic Science and Technology	0	0	0	0	4	4	4	2	2	0	3	
GICM GIS - Crime Mapping & Analysis							2	0	2	2	1	
												#N/A
Number of Majors2	**24**	**30**	**30**	**40**	**48**	**47**	**50**	**43**	**47**	**61**	**63**	
Overall declared majors3	3,824	3,806	3,840	3,862	3,837	3,805	3,597	3,279	2,937	2,682	2,549	
Percentage of overall declared majors	**0.63%**	**0.79%**	**0.78%**	**1.04%**	**1.25%**	**1.24%**	**1.39%**	**1.31%**	**1.60%**	**2.27%**	**2.47%**	
Environmental & Earth Science, B.A.	0	0	0	0	1	0	0	0	0	0	0	
Environmental & Earth Science, B.S.	18	21	21	28	36	37	32	29	27	26	26	
Geographic Science & Technology, B.A.	0	0	0	0	0	0	0	0	0	0	0	
Geographic Science & Technology, B.S.	6	9	9	12	11	10	13	6	6	4	3	
Environmental Public Health , B.S.							5	8	4	4	4	
Public Health Practice, B.S.									11	25	30	
												#N/A
Incoming Freshmen												#N/A
Environmental & Earth Science, B.S.	4	2	4	3	4	4	2	4	4	7	1	
Geographic Science & Technology, B.S.	2	2	0	0	0	0	1	1	0	0	0	
Environmental Public Health , B.S.			0	0	0	0	1	2	0	1	0	
Public Health Practice, B.S.			0	0	0	0	0	0	0	5	2	
												#N/A
Number of incoming freshmen majors	6	4	4	3	4	4	4	7	4	13	3	
Percentage of incoming freshmen class4	0.65%	0.59%	0.55%	0.42%	0.54%	0.56%	0.58%	1.04%	0.69%	2.76%	0.17%	
												#N/A
Incoming Transfer												#N/A
Environmental & Earth Science, B.S.	1	6	3	2	6	3	5	7	1	4	2	
Geographic Science & Technology, B.S.	1	1	1	4	1	3	2	0	0	0	1	
Environmental Public Health , B.S.								2	0	0	0	
Public Health Practice, B.S.								0	0	3	1	
Total												#N/A
Number of incoming transfer majors	2	7	4	6	7	6	7	9	1	7	4	
Percentage of incoming transfer class4	0.46%	1.67%	1.02%	1.36%	1.62%	1.44%	2.29%	4.05%	0.39%	2.63%	0.94%	
												#N/A
Number of Minors												
ENPH Environmental Public Health										3	1	
ERTH Earth Science	5	8	8	12	8	6	8	6	12	11	6	
GIS Geographic Information Systems	0	0	9	5	11	7	4	4	5	7	10	
GEOE Geographic Science & Technology	7	8	6	14	12	8	7	4	4	3	9	
GICM GIS Crime Mapping and Analysis	0	0	0	0	0	3	7	4	5	6	3	

Appendix B, continued. **Enrollment in Environmental, Geographic, and Public Health Sciences**

Retention Rates 5												
Retention Rate in Major - Earth & Geographic Sciences	0.00%	50.00%	75.00%	100.00%	0.00%	50.00%	50.00%	75.00%	28.57%	50.00%	66.67%	#N/A
Environmental & Earth Science	0%*	50%*	100%*	100%*	0%*	50%*	50%*	50%*	50%*	50%*	50.00%	
Geographic Science & Technology	-	50%*	50%*	-	-	-	-	100%*	0%*	-	-	
Environmental Public Health	-	-	-	-	-	-	-	100%*	0%*	-	-	
Public Health Practice	-	-	-	-	-	-	-	-	-	-	100%*	
Retention Rate Changed Major - Earth & Geographic Sciences	100.00%	16.67%	0.00%	0.00%	66.67%	0.00%	0.00%	0.00%	0.00%	50.00%	11.11%	#N/A
Environmental & Earth Science	100%*	16.67%*	0%*	0%*	66.67%*	0%*	0%*	0%*	0%*	50%*	16.67%	
Geographic Science & Technology	-	0%*	0%*	-	-	-	-	0%*	0%*	-		
Environmental Public Health	-	-	-	-	-	-	-	0%*	0%*	-		
Public Health Practice	-	-	-	-	-	-	-	-	-	-	0.00%	
Retention Rate in Major Institutional	62.52%	62.15%	58.75%	62.36%	65.17%	61.38%	61.71%	62.99%	55.52%	56.89%	60.08%	#N/A
Retention Rate Changed Major Institutional	15.56%	15.19%	16.11%	12.55%	12.80%	11.98%	11.78%	13.58%	12.42%	15.03%	12.68%	

1 *Academic Year* covers the fall and spring semesters ending with the spring term of the academic year date (ex. Fall, 2018 and Spring, 2019 = AY19)

2 *Number of Majors* for this department includes both major 1 and major 2.

3 Number *Overall Declared Majors* is the number of matriculated undergraduate day-school students, excluding Pre-majors.

4 *Incoming freshmen/incoming transfers as percentage of incoming class*

5 Academic year indicated for *Retention Rates* is the year for which students were retained. *Retention Rates* is calculation for full-time freshmen entering in fall and retained for the following fall

Appendix C. Public Health Science Admissions Funnel Data Fall 2022-2024.

Metric	Total Applications	Admit	Deposit	Enrolled
Public Health Science				
Environmental Public Health	30	12	1	1
Fall 2024	6	4		
Fall 2023	11	3		
Fall 2022	13	5	1	1
Public Health Practice	165	100	10	7
Fall 2024	76	48	3	3
Fall 2023	50	26	3	1
Fall 2022	39	26	4	3

Appendix D. **Public Health Science student demographic and graduation data, AY22 and AY24.**

	AY 22			AY 24		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
American Indian or Alaskan Native						
Asian				1		1
Black or African American	1	2	3	2	14	16
Hispanic		1	1		3	3
More than one		2	2		1	1
Native Hawaiian or Pacific Islander						
Non-resident Alien						
Unknown		1	1		2	2
White	2	2	4	2	10	12
Total	**3**	**8**	**11**	**5**	**30**	**35**

Appendix E. **Student internship placements for PHS Students, AY20-24.**

Semester	Student(s)	Location/organization	Faculty supervisor
Summer 21	Ben Rush	Martha's Vineyard Tick Program	Gordon
Spring 22	Martha Garley	Mass DEP	Huang
	Brittany Jefferson	National Africa College and Health Services	Gordon
Spring 23	Elissa Nystrom	Bridgewater Primary Care and Cardiology	Gordon
Spring 23	Keila Ribeiro	National Africa College and Health Services	Gordon
Spring 23	Kolby Beauvais	Evaluating food access, research assistant	Li (SOC)
Summer 23	Brooke Livingston	VA Health systems	Gordon
Fall 23	Alice Miranda	Emerson Hospital	Gordon
Fall 23	Madi Craig	CHNA9	Gordon
Fall 23	Max Laguerre	Community Health Awareness Grows Network (CHANGE)	Gordon
Fall 23	Milardie Millard	Digital Navigator Intern	Huang
Fall 23	Rita Pires	Digital Navigator Intern	Huang
Spring 24	Sam Wozniak	Digital Navigator Intern	Huang
Spring 24	Jayda Traynor	Emerson Hospital	Gordon
Spring 24	Tori Loiselle	Girls Inc	Clark

Appendix F. Faculty

Table I. Faculty qualifications

Name	Rank	Type of Academic Appointment TT, T, NTT	FT or PT	Highest Degree	FTE by Program	Very Brief description of Activity		
						Teaching	Scholarship	Service
Elyse Clark	Assoc P	T	FT	PhD		Hydrogeology, Soils, Geology, Earth Science	Hydrogeochemistry	Department Curriculum Committee, Undergraduate Research Cmte, Sustainability Cmte
Elizabeth Gordon	P	T	FT	PhD		Oceanography, Climatology, Climate Change & Human History, Honors, Earth Science, Environ Health	Aquatic organic geochemistry; Geoscience education	Department Curriculum Cmte, AUC Curriculum, Honors Advisory
Jane Huang	P	T	FT	PhD		Intro to Geospatial Tech, GIS, Web GIS, GISII, GIS for CJ	Geographic Information Systems	Department Curriculum Committee, Library Advisory Cmte, Crocker Center Advisory Board, Equity and Diversity, Academic Policies
Reid Parsons	Assoc P	T	FT	PhD		Earth Science, Geology, Environmental Geology, Remote Sensing, Honors Seminar, Geomorphology	Mars climate /geomorphology	Department Curriculum Committee, Sustainability Committee
Amanda Taylor	Adjunct	NTT	PT	MPH		Public Health in the US; Epidemiology; Public Health Strategies	n/a	n/a
Jared Vanasse	Asst P	TT	FT	PhD		General and Calculus-based Physics, Astronomy, Honors seminar	Few body nuclear systems and effective field theory	Department Curriculum Committee, Undergraduate Research Cmte, AUC Curriculum, Parking Committee
Jiang Yu	P	T	FT	PhD		General and Calculus-based Physics	Physics Education	Department Curriculum Committee, Juror for the US Young Physicist Tournament, College Board AP Physics Consultant

Appendix F, continued.

Table II. Faculty demographics

Demographic Faculty Summary	No. of Full Time Assigned to Unit	No. of Part Time Assigned to Unit
Women	4	1
Men	2	2
Ethnicity		
White/Caucasian	4	3
Asian	2	
Hispanic/Latino		
Black/African American		
American Indian		
International or Other		
Credentials – highest degree held		
Bachelor's Degree		
Master's Degree		3
Doctorate	6	
Experience		
0-3 years		1
4-7 years	2	1
8-11 years	1	1
12-15 years		
16-24 years	2	
25+ years	1	

Table III. Teaching responsibilities

Full time faculty

Faculty member	Courses taught or planning to teach
Elyse Clark	Earth Systems Science, Geology, Geomorphology, Environmental Hydrogeology, Water Resources and Society, Environmental Geology, Soils and the Environment, Honors Scientific Inquiry
Elizabeth Gordon	Earth Systems Science, Oceanography, Meteorology, Climatology, Climate Change and Human History, Environmental Health, Honors Scientific Inquiry
Jane Huang	Intro Geospatial Analysis, Computer Cartography, GIS, GISII, WebGIS, Urban Geography, GIS for CJ
Reid Parsons	Earth Systems Science, Geology, Environmental Geology, Geomorphology, Remote Sensing, Honors Seminar Environmental Science, Data Visualization, Honors Scientific Inquiry
Jared Vanasse	General Physics I and II, Calculus-based Physics I and II, Astronomy
Jiang Yu	General Physics I and II, Calculus-based Physics I and II

Adjunct faculty who have taught more than two semesters.

Faculty member	**Courses taught**
Kyle Anderson	Meteorology, Physical Science, Physics
Dr. Rudra Aryal	General Physics I and II
Joseph Occhipinti	Human Geography, Political Geography, Population Geography, US and Canada, Latin American Geography, Urban Geography
Amanda Taylor	Public Health in the US, Epidemiology, Public Health Strategies

Curriculum Vitae

Deborah Ann Benes

June 2024

Bachelor of Science in Nursing Program
Fitchburg State University
Fitchburg, MA 01453
978-665-3325
Email: dbenes@fitchburgstate.edu

120 Blood Road
Townsend, MA 01474
Cell: 978-430-7816
dbenes@ignmedia.com

EDUCATION

2015 Ph.D. University of Massachusetts Lowell
Area of Specialization: Nursing and Health Promotion
Dissertation: *Social and environmental influences on moderate to vigorous physical activity in adolescent Hispanic females.*

2007 Framingham State University
Post Master's Certification in Nursing Education

1990 M.S. State University of New York at Stony Brook
Pediatric Nurse Practitioner/Clinical Nurse Specialist
Area of Specialization: Child Health

1988 B.S. State University of New York at Stony Brook
Area of Specialization: Professional Nursing
Honors: Cum Laude, Nightingale Society

1986 A.A.S. Dutchess Community College
Area of Specialization: Professional Nursing
Honors: Hudson River Nurses Alumni Scholarship

TEACHING EXPERIENCE

2019- Present Associate Professor and Chair, Bachelor of Science Nursing Program, Fitchburg State University

2018- 2019 Associate Professor, Bachelor of Science Nursing Program, Fitchburg State University

2008- 2018 Assistant Professor**,** Bachelor of Science Nursing Program, Fitchburg State University

2007- 2008 Instructor**,** Bachelor of Science Nursing Program, Worcester State University

2007 - 2009 Clinical Instructor**,** Associate Nursing Program, Quinsigamond Community College

2006 - 2007 Assistant Professor, Associate Nursing Program, Anna Maria College, Paxton, MA

1993 - 2006 Clinical Preceptor
Advanced Practice Nursing Programs for Old Dominion University, Boston College, University of Massachusetts, Massachusetts General Hospital, Simmons College and Northeastern College.

1993 – 1994 Adjunct Faculty, Master of Nursing Program, Old Dominion University

PROFESSIONAL EXPERIENCE

2006 - 2014 Pediatric Nurse Practitioner, UMass Memorial Medical Center, Worcester, MA

2007 - 2012 Health Director, Adirondack Camp, Putnam Station, NY

1995 - 2006 Pediatric Nurse Practitioner, Medical Associates, Pediatrics, Leominster, MA

1992 - 1994 Pediatric Nurse Practitioner, Children's Hospital of the King's Daughter, Norfolk, VA

1990 - 1992 Nurse Coordinator, Mount Sinai Medical Center, New York, NY
Research Study: Pediatric pulmonary and cardiovascular complications of vertically transmitted human immunodeficiency virus infection.

1990 - 1992 Research Assistant, Mount Sinai Medical Center, New York, NY
Research Study: A study of the safety and immunogenicity of Haemophilus influenza type b conjugate vaccine in infants and children with HIV infection.

PROFSSIONAL ORGANIZATIONS

2017 – present Massachusetts Public Health Association, member

2014 - present Eastern Nursing Research Society, member

2010 - 2018 National Association of Pediatric Nurse Practitioners, member

2009 - 2015 Sigma Theta Tau, member

2006 - present National League for Nursing, member

2006 - 2013 Massachusetts Rhode Island League for Nursing, member

PROFESSIONAL HONORS, AWARDS, CERTIFICATIONS

2014 Dr. May Futrell Scholarship

2012 Certificate of Appreciation for Mass in Motion Community Health Fair, PA Education

2011 Nurses Educational Fund Scholarship

2010 Tufts Health Plan Foundation Nurse Scholars Program Scholarship

2008 Promise of Nursing for Regional Faculty Fellowship

2007 Post Master's Graduate Certificate in Nursing Education

1999 Certificate in Lactation Counseling

1992 National Institute of Health Certificate of Appreciation

1991 American Nurses Credentialing Center, Pediatric Nurse Practitioner Certification

GRANTS

2024 ($50,000) *Preparing a Diverse Nursing Workforce Through Competency-Based Education and Assessment* Funded by the Fairlawn Health Foundation

2024 ($2500) *Psychometric Validation of the Medication Administration Competency Assessment Tool* Funded by Fitchburg State University

2023 ($100,000) *Augmented Reality in Supporting Nursing Education* Funded by George I. Alden Trust Foundation

2023 ($575,000) *A Five Year Initiative for Fitchburg State University Nursing Education to Establish an Interdisciplinary Innovative Simulation Laboratory: Development of a Competency-Based Curriculum to Educate Workforce Ready Graduates* Funded by the Elaine Nicpon Marieb Foundation

2020 ($100,000) *Fitchburg State University Simulation Center for Nursing Education* Funded by George I. Alden Trust Foundation.

2019 ($2500) Benes, D. *Understanding physical activity levels in an ethnically diverse community: A mixed methods study.* Funded by Fitchburg State University

2017 ($2000) Benes, D. *Community Health Food Assessment Survey.* Funded by the North Central Massachusetts Community Network area 9.

2017 ($240,000) Gordon, E., Welch D., Huang, J., Wigmore, D., Scapparone, R., Lorencova, V., Downing, E., & Benes, D. *Fitchburg State University Student-Faculty Collaborative Summer Research Experience.* Funded by the Lloyd G. Balfour Foundation

2016 ($1200) Benes, D., *Photovoice as an experiential learning process in Community Health Nursing.* Funded by the Douglas and Isabelle Crocker Center for Civic Engagement

2013 ($500) Benes, D., *Cleghorn Afterschool Nutrition and Physical Activity Program*. Funded by Fitchburg State University Alumni Association

2009 ($10,000) Benes, D. (PI), Devine, C. (C0-PI), McKew, C., *Pain Assessment utilizing FLACC Scale.* BHE Nursing Initiative- Simulation Technology in Nursing Education and Practice

2008 ($10,000) Benes, D. (PI), Bechtel, C. (Co-PI), *Implementation of Personal Digital Assistants in the Clinical Setting.* Worcester State College

PUBLICATIONS

Refereed Publications

2021 Mariolis, T., Devine, C., Benes, D., Finn, T., Dupuis, J. (2021). Redesign of clinical curricula in a baccalaureate nursing program. [Unpublished manuscript].

2021 Mariolis, T., Devine, C., Mchenga-Lewis, & Benes, D. (2021). Nursing faculty leadership and teamwork: critical during the pandemic [unpublished manuscript].

2017 Benes-Nadworny, D., Dowling, J.S., Crawford, S., Hayman, L. L. (2017). Social and environmental influences physical activity in Latina adolescent. *Public Health Nursing (34)*2, 101-111

INVITED PRESENTATIONS – Papers

2022 2021 Community Health Needs Assessment and Community Health Improvement Plan Development: Healthy Food Access and Community Food Security (12, April 2022)

2021 Three Progression of Community Based Physical Activity Research (2021, May 18). Faculty Development Day, Fitchburg State University

2016 Embedded librarians: Collaborating for student success (2016, August 30). Graduate and Continuing Education Faculty Meeting and Professional Development Workshops, Fitchburg State University

2015 Social and environmental influences on moderate to vigorous physical activity in Hispanic adolescent females (2015, May 20). Sigma Theta Tau Epsilon Beta Chapter, Fitchburg State University.

2014 The highs and lows of a community partnership: Promoting healthy lifestyle choices in school aged children (2014, March 21). Engaged Scholarship Conference, Fitchburg, MA

REFEREED PRESENTATIONS – Posters

2018 Benes, D., Huang, J., Wigmore, D. (2018, February). *Physical activity and perception of recreational facilities in a low socioeconomic community.* Active Living Research Conference, Banff, Canada

2017 Gildea, K.M., Berry, A.J., Wunsch, C.J., Rook, T.M., Benes, D., Wigmore, D. (2017, October). *Physical activity habits and indicators of health in a low socioeconomic community.* New England Chapter of the American College of Sports Medicine annual meeting, Providence, RI

2017 Benes, D, (2017, June). *Photovoice: an experiential learning strategy for community health nursing.* 25th Annual Conference for Nurse Educators: Clinicians and Educators: Collaborating to Meet Practice Changes. Falmouth, MA

2015 Benes-Nadworny, D., Dowling, J. S., Crawford, S., Hayman, L. L. (2015, April). *Social and environmental influences on moderate to vigorous physical activity in Hispanic adolescent*

females. 36th Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine, San Antonio, TX.

REFEREED PRESENTATIONS – Papers

2016 The role of culture and community in the development of physical activity programs for Latina adolescents (2016, April 15) Eastern Nurses Research Society

2015 Social and environmental influences on moderate to vigorous physical activity in Hispanic adolescent females (2015, November 6). Sigma Theta Tau, Beta Tau Chapter,

INSTRUCTIONAL RELATED ACTIVITY

Teaching: Fitchburg State University – Baccalaureate Level
2008-present

			Number of Students/Fall Semester										
Course #	Course Title	Credit allocation	F08	F09	F10	F11	F12	F13	F14	F15	F16	F17	F18
3900	Pediatric Nursing*	3 (3h)	24	24	24	24	24	24	16	16	18		
3901	Pediatric Nursing Lab	4.35 (12h)	16	16	16	16	16	16	16	16			
4000	Research in Nursing	3 (3h)				25	50						
4400	Community Health Nursing	3 (3h)							18	20	20	21	20 23
4401	Community Health Nursing Lab	4.35 (12h)									6	16	8
3710	Evidece Based Practice in Nursing (online)	3 (3h)								12	11	18	
4500	Nursing in a Global Community	3(3 h)										3	

*Note: Pediatric nursing is a 7 week course and was initially co-taught. As of Fall2014 it is individually taught

Course #	Course Title	Credit allocation	S09	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19
3900	Pediatric Nursing*	3 (3h)	24	24	24	24	24	16	16	16	16		
3901	Pediatric Nursing Lab	4.35 (12h)	16	16	16	8	8	16	16	16			
3710	Evidence Based Practice in Nursing (face to face)	3 (3h)						15	12	16	6	12	
3710	Evidence Based Practice in Nursing (online)	3(3h)								10		9	
4400	Community Health Nursing												12
4401	Community Health Nursing Lab	4.35 (12h)									6	6	6
3002	Global Public Health – Study Abroad/ Costa Rica	3(3h)										13	12

*Note: Pediatric nursing is a 7 week course and was initially co-taught. As of spring 2014 it is individually taught

Summer

Course #	Course title	Credit Allocation	Summer1
4400	Community Health Nursing Study Abroad/Ghana	3 (3h)	12
4401	Community Health Nursing Lab - Ghana	4.35(12h)	12

Honors Projects/ Independent Studies

2018/19 Corinne Richards, Honors Dissertation: Massachusetts Middle School Curriculum and Healthy Behavior Education

2014 Stephanie Martinez, Independent Study (Senior) – Orthopedic Quality Improvement Project @ Brigham and Women's Hospital

2013 Sarah Baker, Honors Project (Senior) – Tobacco Free Campus at Fitchburg State University

2011 Brittany Collins, Independent Study (Senior) – Nursing Care of a Child with Down Syndrome

Teaching: Fitchburg State University – Graduate Level

2012-present 7700 Nursing Research (Spring 2012, Fall 2013) (Co-faculty)

Teaching: Worcester State University

2007-2008 Baccalaureate Level
NU200 Nursing foundations lab, NU310 Maternity Nursing, and NU310 Pediatric Nursing

Teaching: Anna Maria College

2006-2007 Associate Degree Level
Medical surgical Nursing and Pediatric Nursing

SERVICE ACTIVITIES

Community activities related to Professional field

2021-22 COVID Vaccination clinics
2016 Co-Chair CHNA9 Healthy Living CHIP

2017 Peer Reviewer, *Preventive Medicine*
2017 A healthy eating cooking and learning demonstrating on the benefits of eating non starchy vegetables – Cleghorn Center
2016 Peer Reviewer, *Public Health Nursing*
2015 Peer Reviewer, *Journal of Pediatric Nursing*
2013 Mass in Motion Community Health Fair
2013 Cleghorn Afterschool Nutrition and Physical Activity Program
2008 Coordinator – Special Olympics Young Athletes Program at Worcester State College

2002 North Central Massachusetts Breastfeeding Coalition – Breast Feeding Awareness Week

1998 – 2003 Health Alliance Well Child Programs Instructor, Newborn parenting classes

Committee Activities Department of Nursing

a. Fitchburg State University

2018-2019 Graduate Committee, member

2016-2018 Department Search committee, Chair

2016 -2017 Curriculum committee, Chair

2015-2017 Junior level Coordinator

2014 CCNE Accreditation Standard II subcommittee, member

2014-2016 Student liaison/nominations committee, Chairperson

2011-2013 Student policies committee, member, Chairperson

2011-2013 Assistant Chairperson, Department of Nursing

2008-2010 Admissions committee, member, Chairperson

2008- 2017 Curriculum committee, member

b. Worcester State University

2007-2008 College Student Affairs Committee, member
Union liaison for Nursing Department
Orientation Committee, member
Advisory Committee, member
Program Evaluation Committee, member
CCNE Accreditation Standard IV subcommittee, member
Faculty and Lab Coordinator Search Committee, Chairperson

c. Anna Maria College

2006-2007 Curriculum Development
Preparation for initial NLN Certification

Other Services to Fitchburg State University

2023-2024 University Mission and Vision Committee

2021-2022 All University Committee Fitchburg State University

2019-2020	FSU 5yr. Strategic Plan, Steering Committee member
2018-2021	Crocker Center Advisory Board
2017	Development team - Environmental and Public Health Curriculum track under Environment and Geographical Sciences: start date fall 2018
2017	Development team – Crocker Center Community Research Group for Applied Scholarship
2017	Volunteer member of Fitchburg State University Civic Action Compact committee
2015-2017	All University Committee/ Policies committee - member
2012-2017	Mentored two pediatric adjunct clinical faculty members
2008-2019	Academic advising for 22-25 Baccalaureate nursing students
2008-present	Representative of Nursing Department at University Open Houses
2010-present	Representative of Nursing Department at Accepted Students Reception
2014-2019	Faculty Volunteer, Student Nurses Association

Elyse V. Clark, Ph.D.

Fitchburg State University
160 Pearl Street
Fitchburg, MA 01420

E-mail: eclark12@fitchburgstate.edu
Phone: (978) 665-4794

PROFESSIONAL APPOINTMENTS

Associate Professor, Department of Environmental, Geographic, and Public Health Sciences
Fitchburg State University, Fitchburg, MA September 2024 – present

Assistant Professor, Department of Environmental, Geographic, and Public Health Sciences
Fitchburg State University, Fitchburg, MA September 2018 – August 2024

Visiting Assistant Professor, Department of Geology and Environmental Earth Science,
Miami University, Oxford, OH August 2017- May 2018

EDUCATION

Ph.D. *Hydrogeochemistry*, **Virginia Tech** May 2017
Dissertation: Hydrologic and hydrochemical processes on mine spoils

B.S. *Environmental Science (with Dept. Honor*s), **University of Mary Washington** May 2013
Second Major: *Geology*
Honors Thesis: Spatial and historical analysis of the distribution of polycyclic aromatic hydrocarbons in surface water bodies of the lower Chesapeake Bay watershed

COURSES TAUGHT

Earth Systems Science
Environmental Geology
Environmental Hydrogeology
Environmental Soil Science
Geology
Geomorphology
Water Resources and Society

RESEARCH EXPERIENCE

Evaluation of land use change impacts on watershed sedimentation and contaminants:

- Age-dating of sediment cores via Cs-137 and Pb-210 techniques

- GIS-based land use/land cover and soil erosion analyses
- Trace metal accumulation and enrichment in reservoir sediment

Understand and quantify human activity impacts on soils and hydrochemistry, including:

- Evaluation of temporal release patterns of major and minor ions to streams
- Mineralogical and geochemical properties influencing dissolved salt generation
- Infiltration properties in response to vegetative treatments on disturbed soils
- Characterization of bioaccumulation potentials of toxic metals (e.g. As, Se, Pb)
- Effects of road salt applications on water quality, aquatic organisms, soils, and plants

PEER-REVIEWED PUBLICATIONS

12) **Clark EV,** J Lanier, and BK Odhiambo. 2024. Assessment of dam sediment and grab samples for metal contamination in a historically industrialized New England city. *Water, Air & Soil Pollution* 235 (17). https://doi.org/10.1007/s11270-023-06767-x

11) **Clark EV**, DJ Soucek, SH Schoenholtz, KM Whitmore, and CE Zipper. 2023. Trace elements and consequent ecological risks in mining-influenced streams of Appalachia. *Environmental Toxicology and Chemistry* 42(12): 2651-2665. https://doi.org/10.1002/etc.5734

10) Richardson JB, SA Thrasher, B Saccardi, and **EV Clark**. 2023. Sulfidic schist release of As, Cu, and Pb in laboratory experiments and across eleven watersheds in central Massachusetts, USA. *Environmental Geochemistry and Health*. https://doi.org/10.1007/s10653-023-01718-1

9) Welsh DP, JP Ludlam, EL Downs, ES Gordon, **EV Clark**, B Levy, J Huang, and AM O'Connor. 2023. Stream fish community structure across an urban gradient in a northeastern US watershed. *Environmental Biology of Fishes* 106:1579-1595.

8) **Clark EV,** CE Zipper, DJ Soucek, and WL Daniels. 2021. Contaminants in Appalachian Water Resources Generated by Non-Acid-Forming Coal Mining Materials. In: *Appalachia's Coal-Mined Landscapes*. Springer.

7) **Clark EV,** CE Zipper, WL Daniels, and MJ Keefe. 2018. Appalachian coal mine spoil elemental release patterns and depletion. *Applied Geochemistry* 98:109-120.

6) **Clark EV**, WL Daniels, CE Zipper and KE Eriksson. 2018. Mineralogical influences on water quality from weathering of surface coal mine spoils. *Applied Geochemistry* 91: 97-106. DOI 10.1016/j.apgeochem.2018.02.001

5) **Clark EV,** WL Daniels, CE Zipper, ZW Orndorff, and MJ Keefe. 2017. Modeling patterns of total dissolved solids release from Central Appalachia, USA mine spoils. *Journal of Environmental Quality* 46: 55-63. DOI 10.2134/jeq2016.04.0149

4) **Clark EV,** BM Greer, ET Hester, and CE Zipper. 2016. Specific conductance-stage relationships in Appalachian valley fill streams. *Environmental Earth Sciences* 75: 1222. DOI 10.1007/s12665-016-6026-2

3) **Clark EV** and CE Zipper. 2016. Vegetation influences near-surface hydrological characteristics on a surface coal mine in eastern USA. *Catena* 139: 241-249. DOI 10.1016/j.catena.2016.01.004

2) **Clark EV,** BK Odhiambo, S Yoon, and L Pilati. 2015. Hydroacoustic and spatial analysis of sediment fluxes and accumulation rates in two Virginia reservoirs, USA. *Environmental Science and Pollution Research* 22:8659-8671. DOI 10.1007/s11356-014-4050x

1) **Clark EV,** BK Odhiambo, and MC Ricker. 2014. Comparative analysis of metal concentrations and sediment accumulation rates in two Virginia reservoirs, USA: Lakes Moomaw and Pelham. *Water Air and Soil Pollution* 225:1860. DOI 10.1007/s11270-013-1860-2

CONFERENCE PRESENTATIONS AND PAPERS

*denotes undergraduate student at Fitchburg State University or other university

28) Connery DM* and **EV Clark**. 2025. High Resolution Surface Water and Soil Analysis of a Central Massachusetts Watershed. Northeastern Section Meeting of the Geological Society of America. Erie, PA. 28 Mar.

27) **EV Clark**. 2024. Impacts of De-Icer Applications on Roadside Soils in an Urbanized Massachusetts Watershed. International Soil Science Society of America Meeting. San Antonio, TX. 11 Nov.

26) Richardson JB and **EV Clark**. 2023. Neoformed Iron Oxides Prevent Arsenic and Lead in Sulfidic Schists from Contaminating Streamwater at the Watershed Scale in Massachusetts, USA. National Meeting of the American Geophysical Union. San Francisco, CA. 11 Dec.

25) **Clark EV.** 2023. Road Salt Impacts on Soil and Water Quality in a Central Massachusetts Watershed. International Soil Science Society of America Meeting. St Louis, MO. 1 Nov.

24) **Clark EV**, J Lanier*, and BK Odiahmbo. 2023. Assessment of Dam Sediment for Metal Contamination in a Historically Industrialized New England City. Northeastern Section Meeting of the Geological Society of America. Reston, VA. 18 March.

23) Brassard K* and **EV Clark**. 2023. Impacts of Road Salt Applications and Urbanization on Water Quality and Aquatic Macroinvertebreates of the North Nashua River, Massachusetts. Northeastern Section Meeting of the Geological Society of America. Reston, VA. 18 Mar.

22) Lanier J*, **EV Clark,** and BK Odhiambo. 2022. Spatial Analysis of Dam Sediment and Metal Contamination in the Northern Nashua River Basin. Annual Meeting of the Society of Environmental Toxicology and Chemistry, Pittsburgh, PA. 13-17 Nov.

21) **Clark EV** and RP Carpenter*. 2022. Assessing the Upstream to Downstream Trends in Freshwater Salinization of an Urbanized Central Massachusetts Watershed. National Geological Society of America Meeting. Denver, CO. 9 Oct.

20) Lanier J*, **EV Clark**, and BK Odhiambo. 2022. Spatial Analysis of Metal Contamination and Dam Sediment in the Northern Nashua River Basin, Massachusetts, USA. Northeastern Section Meeting of the Geological Society of America. Lancaster, PA. 22 Mar.

19) Carpenter RP* and **EV Clark**. 2021. The Observed Impact of Road De-icers on Water Quality in North-Central Massachusetts. National Geological Society of America Meeting. Portland, OR. 12 Oct.

18) Carpenter RP* and **EV Clark**. 2021. Analysis of the Upstream to Downstream Impacts of Road De-icer Applications on Water Quality in Northern Massachusetts. Northeastern Section Geological Society of America Conference. 15 Mar.

17) **Clark EV,** and CE Zipper. 2020. Mining-Influenced Regional Salinization of Appalachian Streams. National Geological Society of America Meeting. Virtual. 27 Oct.

16) Anderson C[*], ES Gordon, JP Ludlam, D Welsh, J Huang, **EV Clark**, B Levy. 2020. From Student Researcher to Mentor: Assessing the Health of the Nashua River in Massachusetts. Ocean Sciences Meeting, San Diego, CA. 16-23 Feb.

15) Salaiz A[*], Weissman T[*], and **EV Clark**. 2019. Hydrogeochemistry of the Nashua River Tributaries. Student-Faculty Collaborative Summer Research Experience Presentations. Fitchburg State University, Fitchburg, MA. 25 Jul.

14) Rihl G[*], A Franklin, BK Odhiambo, L Giancarlo, and **EV Clark**. 2017. Sediment Accumulation Rates and Trace Metal Input History in Lake Manassas and the Occoquan Reservoir, Virginia, USA. National Geologic Society of America Meeting, Seattle, WA. 22-25 Oct.

13) **Clark EV,** CE Zipper, WL Daniels, ZW Orndorff, and MJ Keefe. 2017. Release of Soluble Elements from Central Appalachian Mine Spoils. Virginia Coal and Energy Alliance Professional Engineers' Seminar. Lebanon, VA. 30 Mar.

12) **Clark EV,** CE Zipper, BM Greer, J Buckwalter, and ET Hester. 2016. Surface Coal Mining Disturbance Effects on Stream Hydrochemistry in Appalachia. American Geophysical Union National Meeting, San Francisco, CA. 12-16 Dec.

11) **Clark EV,** CE Zipper, WL Daniels, Z Orndorff, and MJ Keefe. 2016. Modeling the Leaching Patterns of Central Appalachian Mine Spoils. National Geologic Society of America Meeting, Denver, CO. 25-28 Sept.

10) **Clark EV,** and CE Zipper. 2016. Hydrologic Processes and Discharge Chemistries on Surface Mined Lands in Southwestern Virginia. Poster presented at Virginia Tech Department of Crop and Soil Environmental Sciences Research Symposium, 5 Feb.

9) Zipper, CE, **EV Clark**, WL Daniels and RJ Krenz. 2015. Mine Spoil Fill Construction for Reducing Total Dissolved Solids in Discharged Waters. 2nd Environmental Considerations in Energy Production conference, Pittsburgh, PA. 20-23 Sept.

8) **Clark EV**, CE Zipper. 2015. Infiltration Studies on Mine Spoil Fills. Virginia Department of Mines Minerals and Energy (DMME) Mining Water Quality Meeting. Blacksburg, VA. 18 June.

7) **Clark EV,** WL Daniels, Z Orndorff, CE Zipper, and K Eriksson. 2015. Evaluation of Appalachian Mine Spoil Leachate Chemistry and its Associated Geochemical Influences. National Meeting of the American Society of Mining and Reclamation, Lexington, KY. 7-11 June.

6) Zipper CE, RJ Krenz, **EV Clark**, and WL Daniels. 2015. Evaluation of Total Dissolved Solids Concentrations from Valley Fills. Proceedings of the West Virginia Mine Drainage Task Force Symposium, Morgantown, WV. 31 March-1 April.

5) Zipper CE, WL Daniels, RJ Krenz, **EV Clark**, and DM Evans. 2015. Update on Low TDS Valley Fill Project. Virginia Coal and Energy Alliance Professional Engineers' Seminar, Wise VA. 4 Mar.

4) **Clark EV** and CE Zipper. 2014. Assessment of the Near-surface Hydrological Characteristics of 12 Year Old Grassed and Forested Sites on a Reclaimed Coal Mine in Southwestern Virginia. National Meeting of the Geologic Society of America, Vancouver, BC. 19-22 Oct.

3) **Clark EV,** CE Zipper, DM Evans, RJ Krenz. 2014. Physical and Chemical Discharge Patterns from Valley Fills in Southwestern Virginia. Powell River Project Symposium. Wise, VA. 10 Sept.

2) Evans DM, CE Zipper, and **EV Clark.** 2014. Monitoring Experimental Valley Fills Designed for Reduction of Total Dissolved Solids in Discharged Waters. National Meeting of American Society of Mining and Reclamation, Oklahoma City, OK. 14-20 June.

1) **Clark EV** and BK Odhiambo. 2012. Comparative Analysis of Watershed Erosion, Reservoir Sedimentation and Sediment Trace Metals in Two Virginia Lakes. National Meeting of the Geological Society of America, Charlotte, NC. 4-7 Nov.

PROFESSIONAL ORGANIZATIONS

American Geophysical Union
Geological Society of America
National Association of Geoscience Teachers
Soil Science Society of America

SERVICE

Departmental Assessment Committee
Departmental Curriculum Committee
Center for Faculty Scholarship Advisory Committee
Sustainability Committee
University Assessment and Research Committee
Undergraduate Research Conference Committee

CURRICULUM VITAE
MELISSA A. DUNN, PhD, RN

Education

Institution/Location	Degree
University of Massachusetts Medical School, Worcester, MA	Doctor of Philosophy (PhD) in Nursing
University of Massachusetts Medical School, Worcester, MA	Master of Science (MS) in Nursing Education
Fitchburg State College	Bachelor of Science (BS) in Nursing

License

2001-present	Registered Nurse, Massachusetts License #RN251163

Scholarships

2018	Graduate School of Nursing Scholarship, UMass Medical School
1998-2001	Leadership Academy, Fitchburg State College

Faculty Appointments

2019-present	Assistant Professor	**Fitchburg State University**, Department of Nursing, Fitchburg, MA
2012-2014 2017-2018	Adjunct Faculty	**Quinsigamond Community College**, Department of Nursing, Worcester, MA
2015	Adjunct Faculty	**University of Massachusetts**, College of Nursing, Amherst, MA
2015	Teaching Associate	**University of Massachusetts Medical School**, Graduate School of Nursing, Worcester, MA
2010	Adjunct Faculty	**Worcester State College**, Department of Nursing, Worcester, MA

2006-2008 2005-2006	Instructor Adjunct Faculty	**Fitchburg State College**, Department of Nursing, Fitchburg, MA

Clinical Appointments

2007-2014 2002-2006	Per Diem Nurse Staff Nurse	**UMass Memorial Medical Center**, Children's Medical Center, Worcester, MA
2001-2002	Staff Nurse	**Hasbro Children's Hospital**, Providence, RI

Publications

Dunn, M. & Griggs, S. (2015). Let's talk about pediatric vaccines. *Worcester Medicine, 79* (4), 14. http://www.wdms.org/PDF/0715WOMED.pdf

Dunn, M., Drew, C., O'Brien, J., Wood, M., Mora, E., Diener, S. & Perry, D.J. (2020). A community-academic partnership for school-based nonviolence education: The healthy power program. *Journal of School Health, 90(1),* 65-69. doi: 10.1111/josh.12850.

Presentations

International

Dunn, M. [podium]. Childhood Asthma: Contextual Influences Affecting Family Asthma Management. 15th International Family Nursing Association Conference, Virtual Format, June 28-July 2, 2021.

Dunn, M. [poster]. Childhood Asthma and Social Disadvantage: Exploring the Contextual Influences Affecting Family Asthma Management. 14th International Family Nursing Association Conference, Washington D.C., August 13-16, 2019.

Regional

Dunn, M. & Stone, D. [poster presentation]. Implementing 'Real Talks' and 'Alternative Lessons' in a Community Health Nursing Course: Evaluation of Class Environment. Massachusetts/Rhode Island League for Nursing, Fall Conference and Annual Meeting, Worcester, MA., October 27, 2023.

Dunn, M. [accepted for poster presentation]. Asthma and Social Disadvantage: Exploring the Contextual Influences Affecting Family Asthma Management. 32nd Annual Eastern Nursing Research Society Scientific Sessions, Boston, MA., March 26-27, 2020.

Dunn, M. & Devine, C. [poster] Online Post Clinical Conference. St. Anselm's 16th Annual Conference for Nurse Educators, Kennebunkport, ME. May 2008.

Local

Dunn, M. (2020, February 25). Asthma and social disadvantage: Exploring the contextual influences affecting family asthma management [presentation]. Iota Phi at-large-chapter of Sigma Theta Tau. Worcester, MA, United States.

Dunn, M. & Stone, D. (2021, January 21). Community engagement in the age of COVID: A public health perspective [presentation]. Fitchburg State University Faculty Development Day. Fitchburg, MA, United States.

Dunn, M. (2024, January 11). Simulated client conversations using ChatGPT. Fitchburg State University Development Day. Fitchburg, MA, United States.

Invited Speaker

Date	Location	Audience	Topic
March 9, 2015	Sullivan Middle School, Worcester, MA	After school program for middle school students	Social Determinants of Health
October 13, 2016	UMass Medical School-Graduate School of Nursing	Faculty	Community-Academic Partnerships
March 27, 2018 March 26, 2019 March 31, 2020	UMass Medical School-Graduate School of Nursing	N803 Theory: Critical Analysis and Application (PhD)	Application of the Family Management Style Framework

Professional Organizations

2001-present	Member, Sigma Theta Tau International Honor Society of Nursing
2015-present	Member, Eastern Nursing Research Society
2016-present	Member, International Family Nursing Association Research Committee & Strategic Dissemination Subcommittee
2021-present	Member, Massachusetts/Rhode Island League for Nursing

Community Service

May 27, 2019	Healthy Kid's Day at the Greendale YMCA, Worcester, MA Asthma Education Table

September 24, 2020 October 5, 2021 September 26, 2023	Community Harvest Project, Harvard, MA
May 2021	Fridge Friend, Northborough, MA
September 16, 2021	Wheat Community Connections, Clinton, MA
December 2021- December 2023	Ascentria Care Alliance- Neighborhood Support Team, Northborough, MA

Academic Service

2021-present	Fitchburg State University	Institutional Review Board, member
2020-2021	Fitchburg State University	NECHE Committee, Standard 5 (Students)
Fall 2020 Fall 2021 Fall 2022 Fall 2023	Fitchburg State University	Falcons Supporting Falcons
2019-2024	Fitchburg State University	Departmental Committees: • Undergraduate Curriculum Committee, member (2019-present) • Liaison-Nominations & Bylaws Committee, member (2019-2023) • Simulation Committee (2023-present)
2015-2017	UMass Medical School	Bullying Synergy: Campus Assessment Ad Hoc Task Force, member
2006-2008	Fitchburg State College Nursing Department	Departmental Committees: • By-laws Committee, member • Program Evaluation Committee, member

Professional Development

- American Association of Colleges of Nursing (AACN) Transform 2023 Pre-Conference Workshop and Conference, November 30- December 2, 2023.

- Massachusetts/Rhode Island League for Nursing, Fall Conference and Annual Meeting, Worcester, MA., October 27, 2023

- Saint Anselm College 30th Annual Conference for Nurse-Educators, Falmouth, MA, June 1, 2023
- American Association of Colleges of Nursing (AACN) Transform 2022 Pre-Conference Workshop, November 30, 2022, Chicago, IL
- Massachusetts/Rhode Island League of Nursing (MARILN) Fall Conference October 13, 2022
- Faculty Academy: Pedagogy of "Real Talk" Retreat, Fitchburg State University, June 21-24, 2021 and May 31-June 3, 2022, June 20-21, 2023.
- 15th International Family Nursing Conference: Virtual Format, June 28- July 2, 2021
- Fitchburg State University New Faculty Academy, AY 2019-2020
- 14th International Family Nursing Conference: Washington, D.C. August 2020
- Eastern Nursing Research Society Conference: Providence, March 2022; Providence, April 2019; Newark, NJ April 2018; Washington DC April 2015
- Family Research Institute: Conceptual and Methodological Issues, University of North Carolina, Chapel Hill, NC June 20-23, 2016.
- TEDxBoston, June 2013; October 2014
- Association of Pediatric Hemotology/Oncology Nurses Chemotherapy and Biotherapy Provider Course (2-day course)
- Pediatric Advanced Life Support (PALS) course
- St. Anselm Nurse Educator Conference, May 2008

Courses Taught

Fitchburg State University

Semester	*Course #*	*Course Name (Degree Program)*
Fall 2019 Spring 2020 Fall 2020 Spring 2021 Fall 2021	NURS 4400	Community Health Nursing (BS)

Fall 2022 Fall 2023 Fall 2024		
Summer 2023	NURS 4010	Community Based Nursing (RN to BS online)
Spring 2020 Spring 2022	NURS 3900	Pediatric Nursing (BS)
Fall 2020	NURS 4750	Chronic Illness (BS)- clinical
Spring 2021 Spring 2022 Spring 2023	NURS 4800	Selected Nursing Practicum (BS)- faculty facilitator
Spring 2021 Spring 2022 Spring 2023 Spring 2024	NURS 4802	Selected Nursing Practicum Seminar (BS)
Spring 2023 Spring 2024	NURS 4850	Leadership and Management Concepts in Nursing Practice
Spring 2023 Spring 2024	PHS 3050	Evaluation Strategies in Public Health

Quinsigamond Community College

Semester	*Course #*	*Course Name (Degree Program)*
Spring 2012 Fall 2012 Spring 2013 Fall 2013 Spring 2014 Spring 2017 Fall 2018	NUR 201	Med-Surg II/ Pediatrics (AD)- clinical

University of Massachusetts, Amherst

Semester	*Course #*	*Course Name (Degree Program)*
Summer 2015	N 398F	Care of Children and Families Practicum (BS)- clinical

University of Massachusetts, Worcester

Semester	*Course #*	*Course Name (Degree Program)*
Spring 2015	NG 518B	Nursing III: Care of Childbearing and Childrearing Families (MS)- clinical

Worcester State College

Semester	*Course #*	*Course Name (Degree Program)*
Spring 2010	NU 340	Nursing Science II (BS)-clinical

Fitchburg State College

Semester	*Course #*	*Course Name (Degree Program)*

Fall 2006, Spring 2007 Fall 2007, Spring 2008	NURS 3900	Pediatric Nursing (BS)

ELIZABETH SIOBHAN GORDON

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egordon3@fitchburgstate.edu

PROFESSIONAL APPOINTMENTS

Professor, Environmental, Geographic, and Public Health Sciences, Fitchburg State University, 2019 - present

Department Chair, EGPHS,, Fitchburg State University, 2015 - 2024

Associate Professor, Earth and Geographic Sciences, Fitchburg State University, 2014-2019

Assistant Professor, Geo/Physical Sciences, Fitchburg State University, 2007-2014

Adjunct Assistant Professor, Dept. of Geosciences, UMass-Amherst, Amherst, MA, 2007-2010

EDUCATION

Ph.D. 2004. Marine Science, University of South Carolina.
Advisor: Miguel A. Goñi. Dissertation: *Sources and fate of terrigenous organic matter in modern and ancient sediments from the northern Gulf of Mexico.*

B.S. 1995, *Cum Laude*. Chemical Oceanography, University of Washington.
Advisor: Paul D. Quay. Senior thesis: *An oxygen budget for Steamboat Slough*.

TEACHING ACTIVITIES AT FITCHBURG STATE UNIVERSITY

Undergraduate courses: Introductory courses: *First Year Seminar*; *Earth System Science*; *Meteorology*; *Oceanography*; *Honors Seminar in Environmental Science*; *Climate Change and Human History* (co-taught with Ben Lieberman); *Environmental Ethics* (co-taught with David Svolba); *Environmental Geology (including online);* Upper division courses: *Climatology*; *Geographic Perspectives on Conservation; Remote Sensing*; *Biogeochemistry; Environmental Health*

Graduate courses: *Meteorology*; *Oceanography; Physical Science of Environmental Change* (co-taught with Chris Picone); *Environmental Geology* (online); *Climatology*

Professional Development courses for in-service teachers: *Teaching Earth and Space Science (online),* 2010-12; *Physical Science of the Solar System* (co-taught with Mark Snyder), 2010; *Chemistry of Environmental Change* (co-taught with Chris Picone), 2009; *Physical Science of the Environment* (co-taught with Chris Picone), 2008

ACADEMIC DISTINCTIONS

- Fitchburg State University *Vincent J. Mara Excellence in Teaching Award*, 2021
- Fitchburg State University *Faculty Service Award*, 2017
- University of South Carolina *Vernberg Award for Outstanding Peer-reviewed publication*, 2004
- University of South Carolina *Dean's Award for Excellence in Graduate Study*, 2003
- American Geophysical Union *Outstanding Student Poster Award*, 2002
- University of South Carolina Graduate School *Professional Travel Grant*, 1999, 2001
- Invited Participant, Natl Acad. Sciences *Symposium on Fifty Years of Ocean Discovery*, 1998
- Phi Beta Kappa Honor Society

ACADEMIC AND PROFESSIONAL SERVICE

- **Steering Committee,** MA PKAL, 2015-present
- **Project Coordinator**, Fitchburg State Summer Research Collaborative, 2017-19
- **STEM Coordinator**, Fitchburg State University, 2015-17

Assisted in organizing STEM professional development activities at Fitchburg State, including the STEM Summit (Jan 2015), Interdisciplinary Science working group (2015-17), STEM working group (2016-17), and serving as Fitchburg State's representative on the executive board of AAC&U's Project Kaleidoscope MA Regional Chapter (2015-present).

- Fitchburg State University Committees and working groups:

  AUC Curriculum, AY10, 11; 19-present; LAS subcommittee **Chair** AY20-21
  Honors Curriculum Committee, AY09-13, 22, 24-present
  Co-Chair, NECHE Academic Programs subcommittee, AY20-22
  Leading for Change committee, AY20
  First Year Experience, AY17-21
  LA&S Council, AY11-2019, **Chair** AY15, summer working group, 2016 and 2018
  University Research and Assessment (UARC), AY17-19
  Campus Compact Planning Committee, AY17
  Civic Learning working group; Interdisciplinary working group, AY16-17
  All University Committee, AY14, 15
  Internship Policies Committee, AY13
  ACC Policies, AY08, 09
  Co-Chair, NEASC Student Subcommittee, AY11, 12
  Undergraduate Research Conference, AY11, 12
  Sustainability Advisory Committee, AY08-13
  Safety Committee, AY08, 09
  Departmental Assessment, AY11-present, Curriculum AY08-present, and Budget, 08-10

- Section Officer, National Association of Geoscience Teachers New England Section: **Councilor**, 2016-present; Outstanding Earth Science Teacher Award **Committee Chair** 2015-17; **President**, 2015; **Vice President #1**, 2014; **Vice President #2**, 2013
- **Assessment Researcher**, Learning Assessment Research Consortium, 2014-16
- **Curriculum Scholar**, Fitchburg State Univ./Mount Wachusett Comm Coll Collaborative, 2014-15
- **Assessment Scholar**, Fitchburg State Univ./Mount Wachusett Comm Coll Collaborative, 2012-14
- **Workshop Leader**, *The Math You Need When You Need It*, 2012

RESEARCH ACTIVITIES

- Summer Research Collaborative, 2017-2019
- Research Fellow, Department of Geosciences, University of Massachusetts-Amherst, 2007.
- Postdoctoral Research Associate**,** Biogeochemistry Laboratory, UMass-Amherst, 2005-2007.
- Graduate Research Fellow**,** Organic Geochemistry Laboratory, USC, 1997-2004.

Manuscript reviewer. Journals: *Limnol Ocean; Mar Chem; Cont Shelf Res; Geochim Cosmochim Acta; Deep Sea Res; Sci Total Environ; Environmental Science and Technology; Journal of Geophysical Research: Biogeosciences; Journal of Marine Systems; The Holocene*

Proposal reviewer: National Oceanic and Atmospheric Administration (panelist), National Science Foundation, American Chemical Society.

Textbook reviewer: Pearson, Jones and Bartlett

RESEARCH FUNDING

- Lloyd G. Balfour Grant, 2017-19
- Special Projects Fund, Fitchburg State University, 2011; 2015
- Ruth Butler Grant, Fitchburg State College, 2009
- President's Initiative Funds Fitchburg State College, 2008
- National Science Foundation Small Grants for Exploratory Research (SGER), 2005
- European Association for Organic Geochemists *Travel Scholarship*, 2005
- Environmental Protection Agency *Science to Achieve Results Fellowship*, 2001-2004
- National Science Foundation *Graduate Research Fellowship*, 1998-2001
- University of South Carolina *Graduate School Fellowship*, 1997

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

- American Geophysical Union
- National Association of Geoscience Teachers
- Geological Society of America
- American Society of Limnology and Oceanography
- The Oceanography Society

PROFESSIONAL PRESENTATIONS/MEETINGS

Gordon E.S., 2020. Using OOI Datasets to Expand Quantitative Skills in an Introductory Oceanography Course, Ocean Sciences Meeting, San Diego, CA

Anderson C., **Gordon E.S**., Ludlam J.P., Welsh D., Huang J, Downs E, Clark E and Levy B., 2020. From Student Researcher to Mentor: Assessing the Health of the Nashua River in Massachusetts, Ocean Sciences Meeting, San Diego, CA (student presentation)

Burdick N., Ahern M., Welsh D., **Gordon E.S.**, 2020. Microplastics: More than Just a Saltwater Problem, Ocean Sciences Meeting, San Diego, CA (student presentation)

Downs E.; **Gordon E**.; Huang J.; Ludlam J.; O'Connor A.; Welsh D., 2019. Fitchburg State University Summer Research Collaborative: An Interdisciplinary Research Experience to Improve STEM Retention and Graduate School Attendance, American Society of Limnology and Oceanography Aquatic Sciences Meeting, San Juan, Puerto Rico.

Palinkas C.M., **Gordon E.S.** (Co-conveners), 2018. GeoEthics and the Responsible Conduct of Scientists as Professionals and Educators Town Hall, Ocean Sciences Meeting, Portland, OR.

Gordon E.S., Palinkas C.M. (Co-chairs), 2016. Ethical Principles and Practices in the Ocean Sciences – Poster Session, Ocean Sciences Meeting, New Orleans, LA.

Gordon E.S., Cratsley C.K., Soucy D., 2014. Assessing Civic Knowledge and Engagement across Institutions, NEEAN Fall Forum, Worcester, MA.

Gordon E.S., 2014. Supporting student success in geoscience courses with The Math You Need When You Need It. Geological Society of America Annual Meeting, Vancouver, BC.

Gordon E.S., 2013. Implementing The Math You Need, When You Need It: An effective strategy to support underprepared students in introductory geoscience courses. Geological Society of America Annual Meeting, Denver, CO.

Gordon E.S., 2013. Implementation of "The Math You Need When You Need It" to support student learning in Introductory Oceanography. American Society of Limnology and Oceanography Aquatic Sciences Meeting, New Orleans, LA.

Cratsley C.K., Berg J., **Gordon E.S.**, 2012. More than One Way to Assess QR? AMCOA Statewide Conference, Worcester State University, Worcester MA.

Gordon E.S., 2012. Supporting student success in introductory geoscience at Fitchburg State University using The Math You Need When You Need It. Geological Society of America Annual Meeting, Charlotte, NC.

Gordon E.S., 2011. Improving quantitative skills in introductory geoscience courses at a four-year public institution using online math modules. American Geophysical Union Annual Fall Meeting, San Francisco, CA

Cratsley C.K., Berg J., Moser J., **Gordon E.S**., Railton B., 2011. Liberal Arts and Sciences Outcomes Assessment: Closing the loop or spiraling in the right direction? NEEAN Fall Forum, Worcester, MA and AMCOA Conference, Worcester MA.

Gordon E.S., Schillaski S.E., Petrik C. and Petsch S.T., 2008. Spatial and temporal variability in molecular composition of riverine organic matter delivered to the US Atlantic coast. American Geophysical Union, Ocean Sciences Meeting.

Gordon E.S., Allison, M.A., and Petsch S.T., 2006. Offshore mobilization and microbial uptake of aged floodplain organic matter in response to Hurricane Katrina. American Geophysical Union, Ocean Sciences Meeting, Honolulu, HI.

Gordon E.S. and Goñi M.A., 2005. Sedimentary controls on the distribution of terrigenous organic matter across the Mississippi-Atchafalaya River Margin. American Society of Limnology and Oceanography, A Pilgrimage through Global Aquatic Sciences Meeting.

COMMUNITY PRESENTATIONS

Climate Change in Human History: From Class to Book, with Ben Lieberman. Ayer Public Library , Sept 2019.

Climate Change: Current Science and the National Climate Assessment Report. Lunenburg Public Library, April 24, 2019

Panel discussion, with Drs. Erin Rehrig and Emma Downs, *Girls of Atomic City*. Lunenburg Public Library, March 19 2018. (Part of the Fitchburg State Community Read program)

Panel discussion, with Drs. Eric Budd, Emma Downs, Kate Jewell, and John Schaumloffel, *Girls of Atomic City*. Fitchburg State University Library, September 20, 2017. (Part of the Fitchburg State Community Read program)

Four-part series, with Brion Keagle, *Growing Great Gardens.* Center for Professional Studies, Fitchburg State April 19-May 10, 2011

Co-presented, with Brion Keagle and Chris Picone *Growing Gardens*. Center for Professional Studies, Fitchburg State, May 25 2010

Co-presented, with Dr. Chris Picone, *Global Warming: Science, Hype, or Hoax*. Center for Professional Studies, Fitchburg State, April 6 2010

SELECT PUBLICATIONS

BOOK

Benjamin Lieberman and Elizabeth Gordon, Climate Change in Human History, 2nd edition (2022). Bloomsbury Publishing.

PEER-REVIEWED ARTICLES

Welsh D, Ludlam J.P., Downs E., **Gordon E.S**.,Clark E., Levy B., Huang J, O'Connor A.M., 2023. Stream fish community structure across an urban gradient in a northeastern US watershed. *Environ Biol Fish* 106:1579–1595.

Allison M.A., Dellapena T.S., **Gordon E.S**., Mitra S., Petsch S., 2010. Impact of Hurricane Katrina (2005) on shelf organic carbon burial and deltaic evolution. Geophysical Research Letters 37, L21605, doi:10.1029/2010GL044547

Goñi M.A, Alleau Y., Corbett R., Walsh J.P., Mallison D., Allison M.A., **Gordon E.S.**, Petsch S., Dellapena T.S., 2007 (invited manuscript). The Effects of Hurricanes Katrina and Rita on the Seabed of the Louisiana Shelf. The Sedimentary Record 5, 4-9.

Goñi M.A, **Gordon E.S.**, Monacci N.M., Clinton R., Gishewhite R., Allison M., Kineke G., 2006. The effect of Hurricane Lili on the distribution of organic matter along the Inner Louisiana Shelf (Gulf of Mexico, USA). Continental Shelf Research 26, 2260-2280.

Jane Huang (Formerly Jane Xinxin Zhang)

Environmental, Geographic, and Public Health Sciences — Fitchburg State University
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EXPERIENCES

TEACHING

2017-present	*Professor*, Fitchburg State University
2012-2017	*Associate Professor*, Fitchburg State University
2006-2012	*Assistant Professor*, Fitchburg State University
2006	*Instructor*, University of Idaho, Moscow, ID (part-time)
2001-2003	*Teaching Assistant*, University of Idaho, Moscow, ID (part-time)
1999-2001	*Teaching Assistant*, Washington State University, Pullman, WA (part-time)
1998-1999	*Instructor*, Xi'an Jiaotong University, Xi'an, China

COURSES TAUGHT AT FITCHBURG STATE UNIVERSITY

GEOG 1000:	Earth Systems Science
GEOG 1100:	Principles of Human Geography
GEOG 2007:	Environment and GIS Mapping in Peru (Study Abroad Program)
GEOG 2250:	Honors Seminar in Earth Science
GEOG 2400:	Intro to Geospatial Technologies
GEOG 3004:	GIS for Criminal Justice (cross-listed with CJ 3004)
GEOG 3120:	Computer Cartography
GEOG 3300:	Urban Geography
GEOG 3400:	Population Geography
GEOG 4000:	Geographic Information System (GIS)
GEOG 4001:	Web GIS
GEOG 4003:	Geographic Information System II (GIS II)
GEOG 4880	Teaching Practicum in Geography
GEOG 4900:	Independent Study in Geography
GEOG 4940:	Internship in Geography
GEOG 4975:	Directed Study
P H S 4500:	Public Health Internship

RESEARCH

2005-2006	*Postdoctoral Researcher*, Washington State University, Pullman, WA
2000	*Research Assistant*, Washington State University, Pullman, WA (part-time)

EDUCATION

2005	Ph.D. in Geography (GIS), University of Idaho, Moscow, ID
2001	Master of Regional Planning, Washington State University, Pullman, WA
1998	Bachelor of Engineering in Architecture, Xi'an Jiaotong University, Xi'an, China

RESEARCH ACTIVITIES

GRANTS

2023-2025	Principal investigator, *Tackling Broadband Digital Equity Gap in Fitchburg Project - Digital Equity Partnership with UMass Lowell*. $125,000. Grant sub-recipient. Implementing digital literacy training programs for residents in Fitchburg. Involved 8 students per semester for four semesters.
2022	Spring. Principal investigator, *Study Abroad Scouting Trip to Peru*. MSCA Professional Development Award of $2,500. Scouting sites in preparation for the first study abroad course of the department, *Environment and GIS Mapping in Peru*.

2021	Fall. Principal investigator, *Updating the Conserved Lands Map of the Freedom's Way National Heritage Area*. $7,800. Assisted the Freedom's Way Heritage Association in mapping the conserved lands. Involved 2 students.
2019-2020	Co-investigator, *Worcester County Overdose Death Response Initiative*. $360,000. In joint research coordination with the Middle District Attorney's Office and Fitchburg State University Criminal Justice Program. Part of the Bureau of Justice innovative prosecution solutions for combating violent crime and illegal opioids in Worcester County. Involved 2 students.
2019	Fall. Principal investigator, *Study Abroad Scouting Trip to Peru*. MSCA Professional Development Award of $2,800. Scouting sites in preparation for the proposed study abroad course, *Geology and Environment Mapping in Peru* (with Dr. Elyse Clark). The funding and the trip were cancelled due to the COVID19 pandemic.
2019	Summer. Co-investigator, *Student-Faculty Collaborative Summer Research Experience Program.* Third year of the three-year $240,000 grant project funded by the Lloyd Balfour Foundation, the Community Foundation of North Central Massachusetts, and Avantor Sciences Foundation. In collaboration with 11 professors and 22 students. Supervisor of 1 student on the Health of Nashua River Project.
2018	Summer. Co-investigator, *Student-Faculty Collaborative Summer Research Experience Program.* Second year of the three-year $240,000 grant project. In collaboration with 10 professors and 20 students. Supervisor of 2 students on the Health of Nashua River Project.
2018	Spring. Principal investigator. *Ingleside Trail Survey & Mapping in Winchendon MA*. $100. Using GPS (Global Positioning System) and GIS to survey and map Ingleside trails upon the request of Winchendon Ingleside Utilization Committee. Involved 12 students in the GEOG2400 class. The funding was to cover students' travel costs.
2018	Spring. Principal investigator. *Building a Web GIS Platform*. $2000. Joint grant of Crocker Center for Civic Engagement, ReImagine North of Main, City of Fitchburg, and Montachusett Opportunity Council. Involved 1 student.
2017	Fall. Principal investigator. *Fitchburg Commercial & Industrial Property Inventory and Mapping*. $8,500. Joint grant of Crocker Center for Civic Engagement, ReImagine North of Main, City of Fitchburg, and Montachusett Opportunity Council. Involved 4 students.
2017	Summer. Co-investigator, *Student-Faculty Collaborative Summer Research Experience Program.* First year of the three-year $240,000 grant project. In collaboration with 8 professors and 18 students. Supervisor of 4 students on two projects: *The Health of Fitchburg Communities* and *The Health of Nashua River*.
2016-2017	Principal investigator. Two extensions of the *Neighborhood Property Mapping & Analysis Project*. $9,000. Crocker Center for Civic Engagement Research Grant. Conducted in-depth mapping and spatial analysis of the neighborhood north of Main St, Fitchburg. Involved 4 students.
2016	Spring. Principal investigator. *Neighborhood Property Mapping & Analysis Project*. $9,000. Crocker Center for Civic Engagement Research Grant. In joint research coordination with Prof. Keith Chenot of Architecture. Assisted Montachusett Opportunity Council, NewVue Communities and City of Fitchburg in assessing the neighborhood north of Main St, Fitchburg. Involved 2 students.
2015	Spring. Principal investigator. *GPS Survey of Healthy-Heart Trails.* $200. Led the class of Geog2400 to assist Montachusett Regional Planning Commission (MRPC) in evaluating potential healthy-heart hiking trails in the Montachusett region. Involved 17 students. The funding was to cover students' travel costs.
2013-2014	Principal investigator. *Traffic Mapping and Analysis in North Central MA*. One 3-credit course release. Regional Economic Development Institute (REDI) Research

Grant. Conducted spatial and cartographical analysis of traffic accident patterns in the North Central MA area. Involved 1 student.

2012-2013 Principal investigator. Four REDI Research Grants. Totally $4,000 and two 3-credit course releases. Involved 4 students.
Project 1: *Community GIS Mapping for Regional Zoning, Transportation, Traffic, and Pedestrian Walkways*, in joint collaboration with MRPC
Project 2: *Urban Structure Study of Fitchburg*. GIS research in Urban Planning.
Project 3: *Data Driven GIS Approaches to Crime and Traffic Safety in Fitchburg*, in joint collaboration with FPD (Fitchburg Police Department)
Project 4: *Trends in Regional Economic Development across North Central Massachusetts*, in joint research coordination with Dr. Luis Rosero of Economics.

2012 Fall. Principal investigator. *TravTime Traffic Congestion Study.* $200. Led the class of Geog2400 in a GPS survey project, which assisted MRPC, MassDOT (Massachusetts Department of Transportation), and FHWA (Federal Highway Administration) in identifying and analyzing the most congested corridors in the Montachusett region. Involved 10 students. The funding was to cover students' travel costs.

2012 Principal investigator. Special Projects Grant in Travel of the Academic Affairs. $700. Oral Presentation of *Involving Undergrad Students in GIS Research – the Bringing Broadband to North Central Massachusetts Project* at the 27th Annual Conference of the Northeast Arc Users Group in Rockland Maine on November 11, 2012.

2010-2012 Co-investigator. *Bringing Broadband to North Central Massachusetts.* REDI, Massachusetts Broadband Institute (MBI), and MRPC joint project. $2,500. In joint research coordination with Dr. Beverley Hollingsworth of Business. Conducted spatial and demographic analysis of the accessibility of the broadband high-speed Internet to residents, businesses, and public institutions across the North Central MA area. Involved 1 student.

2011 Fall. Principal investigator. Academic Affairs Special Projects Grant in Faculty Scholarship. $1,500. Purchased twelve Garmin eTrex handheld GPS units; supervised 12 students on the *GPS Survey of Community Trails Project*, assisted the MRPC in their Trail Inventory Project in communities of Athol, Petersham, and Royalston.

2010 Spring. Co-investigator. *GIS Spatial & Trend Analysis – North Central Massachusetts at a Crossroads: Housing Challenges.* REDI Research Grant. One 3-credit course release. In joint research coordination with Prof. Michael Turk of Economics. Constructed a GIS database of the economic parameters of North-Central MA with a focus on the housing market. Conducted spatial and trend analysis of the foreclosure pattern. Involved 1 student.

2009 Fall. Principal investigator. *Trail Mapping Using GPS in Northern Fitchburg Watershed Area*. Crocker Center for Civic Engagement Grant. $750. Assisted the MRPC and the North County Land Trust (NCLT) in their trail inventory study, supervised 7 students mapping the trails in the local watershed area.

2008-2009 Principal investigator. Two extensions of the *Healthy Housing Initiative/Community De-Leading Project*. $7,600. Conducted extended spatial analysis on distribution of properties with high lead poisoning risk and of properties foreclosed in Fitchburg.

2007-2008 Co-investigator. *Healthy Housing Initiative/Community De-Leading Project Grant*. $30,000. In joint with Montachusett Opportunity Council, Fitchburg Lead Action Group, Cleghorn Neighborhood Center, Twin Cities Community Development Corporation, and the City of Fitchburg's Department of Community Development. Used GIS technology to identify hot spots and high-risk properties for childhood lead poisoning in Fitchburg. Involved 1 student.

2006 Fall. Principal investigator. *Bringing ArcGIS® to Fitchburg State* - Faculty Innovation Grant. $2,500. Purchased the ArcGIS site license for the campus.

SELECTED PUBLICATIONS

2023 Daniel Welsh, John Ludlam, Emma Downs, Elizabeth Gordon, Elyse Clark, Benjamin Levy, Jane Huang, Aisling O'Connor. *Stream Fish Community Structure across an Urban Gradient in a Northeastern US Watershed*. Environmental Biology of Fishes (2023) 106:1579–1595

2017 Kayla Kress, Jane Huang. *Standard Operating Procedure of Property Survey in the Fitchburg Communities*. Fitchburg State University Press.

2014 Carmen Bordonaro, Jane Huang. *Mapping Hotspots of Crime and Traffic Violation in Fitchburg, MA.* International Association of Directors of Law Enforcement Standards and Training DDACTS Documents - Fitchburg MA PD DDACTS Study

2009 Jane X. Zhang, Joan Q. Wu, K.-T. Chang, William Elliot, Shuhui Dun. *Effects of DEM Source and Resolution on WEPP Hydrologic and Erosion Simulation: a Case Study of Two Forest Watersheds in Northern Idaho*. Transactions of the ASABE, Vol. 52(2), 447–457

2008 Jane X. Zhang, K.-T. Chang, Joan Q. Wu. *Effects of DEM Resolution and Source on Soil Erosion Modeling: a Case Study Using the WEPP Model*. International Journal of Geographical Information Science, Vol. 22(8), 925–942

SELECTED CONFERENCE PRESENTATIONS

2025 Jane Huang. *Implementing A Digital Navigator Program: Challenges, Growth, and Key Takeaways*. Association of American Geographers (AAG) Annual Meeting, Mar. 24-28. Detroit, MI

2018 Debora Benes, Jane Huang, and Danielle Wigmore. *Physical Activity and Perception of Recreational Facilities in a Low Socioeconomic Community* (poster presentation), Feb. 11-14. Active Living Research Conference 2018, Banff, Canada

2017 Jane Hang, Timothy Maclaughlin, Nicholas De Paula, Jacob Hogue, and Sean Beverly, *Studying Environmental & Public Health in the Fitchburg Area Using GIS*, Oct. 16. NEURISA (New England Urban & Regional Information Systems Association) Annual Conference, Fitchburg, MA

2017 Jane Huang, *Service Learning in Geospatial Technology Courses at Fitchburg State University*, Jun. 7. Massachusetts PKAL Regional Network Summer Meeting, Fitchburg, MA.

2016 Jane Huang, Kayla Kress, Jacob Hogue, Samuel Gallagher, *Neighborhood Property Mapping & Analysis using GIS - Embracing Community Revitalization Project in Building GIS program at Fitchburg State University.* Nov. 14. NEURISA Annual Conference, Fitchburg, MA

2014 Jane Huang, *Mapping Hotspots of Crime and Traffic Violation in Fitchburg, MA.* Oct. 5–8. The 29th Annual Conference of the Northeast Arc Users Group, Groton, CT.

2013 Jane X. Zhang, *Teaching and Learning beyond Classroom – Leading Students on Local Projects Using GIS and GPS Technologies.* Mar. 18–20. Geological Society of America (GSA) 2013 Northeastern Section Meeting, Bretton Wood, NH

2012 Jane X. Zhang, *Involving Undergrad Students in GIS Research – the Bringing Broadband to North Central Massachusetts Project.* Nov. 11–14. The 27th Annual Conference of the Northeast Arc Users Group, Rockland, ME

2007 Jane X. Zhang, *Effects of DEM Resolution and Source on Soil Erosion Modeling*. Jun. 18–22. ESRI (Environmental Systems Research Institute) International User Conference, San Diego, CA

2007 Jane X. Zhang, *Effects of DEM Resolution and Source on Soil Erosion Modeling Using the WEPP Model*. Apr. 17–21. AAG (Association of American Geographers) Annual Meeting, San Francisco, CA

SELECTED LOCAL TALKS

2024 Feb 29. *Conducting Community-Based Research Using GIS and GPS Technologies*. A brief talk at the Crocker Center Open House in the ideaLab of Fitchburg State Univ.

2023 Sep 21. *Mapping and Profiling Communities*. Workshop co-hosted with Dr. Eileen Kirk at the Constitution Week at Fitchburg State University

2022 Sep 1. *Mapping Conserved Lands in the Freedom's Way National Heritage Area.* Presentation at the Faculty Scholarship Symposium at Fitchburg State University.

2020 Jan 29. *Conducting Community-Based Research from the Geospatial Technology Perspective*. A brief talk at the Community Engaged Research and Scholarship Event.

2018 May 21. *Conducting Community-Based Research Using GIS and GPS Technologies.* Presentation at the Faculty Research Symposium at Fitchburg State University.

2018 Feb. 28. *What Geospatial Technologies Can Do for The Fitchburg Community*? A brief talk at the Crocker Center Community Scholarship Group reception at the Montachusett Opportunity Council.

2017 Oct. 26. *Conducting Community-Based Research Using GIS and GPS Technologies*. Poster presentation at the Science Symposium at Fitchburg State University.

2013 Jun 10. *Trends in Regional Economic Development across North Central MA.* In joint presentation with Dr. Luis Rosero. REDI Public Research Forum.

2012 Nov 5. *Broadband Availability & Usage in North Central MA.* In joint presentation with Dr. Beverley Hollingsworth. REDI Public Research Forum.

2011 Nov 7. *Expanding Broadband Access in Massachusetts*. In joint presentation with Patrick O'Brien. REDI Public Research Forum.

2010 Oct 4. *North Central Massachusetts at a Crossroads: Housing Challenges*. In joint presentation with Prof. Michael Turk. REDI Public Research Forum.

2008 Jul 22. *Mapping Using GPS & Google Earth.* Workshop Presentation in the Fourth Summer Institute, Fitchburg State College

2008 Apr 22. *Wealth & Environmental Health.* International Month Earth Day Talk: 6.5 Billion & Counting, Fitchburg State College

2007 Jun 8. *Using GIS for Lead Studies*. Community Research & Service Learning Using GeoSpatial Tools, Worcester State College

CONTRIBUTIONS TO THE DEPARTMENT

INPUT TO CURRICULUM – AUC APPROVALS

2025 New course proposal for GEOG 2001 Regional Geography - Latin America

2023 New course proposal for GEOG 4880 Teaching Practicum in Geography.
Modify the elective requirements of the Geographic Science and Technology major.
Modify the elective requirements of the Geographic Science and Technology minor.

2022 Adding electives to the GIS Minor and the GST Minor curriculums.
New LAS designations for GEOG 1100, 3004, 3100, 3200, 3300, 3400.

2021 New LAS designations for GEOG 2400, 3120, 4000, 4001, and 4003.

2020 Adding electives to the GIS Crime Mapping & Analysis Minor curriculum.
Changing the prerequisite of GEOG/CJ 3004 GIS for Criminal Justice (Co-sponsored with Marcel Beausoleil).

2019 New course proposals for Web GIS; GIS II.
Adding Web GIS and GIS II to the GST major curriculum.

2018 New academic program proposal for the *Environmental Public Health Major*.
New course proposals for Public Health in the US; Fundamentals of Epidemiology; Environmental Geology; Environmental Health; Environmental Policy; and Evaluation Methods in Public. (Co-sponsored with Deborah Benes and Elizabeth Gordon)

2018 New academic program proposal for the *GIS Crime Mapping & Analysis Minor*.

New course proposal for GIS for Criminal Justice (Co-sponsored with Marcel Beausoleil).
Changes to the Geographic Science and Technology major requirements.
Changes to the Geographic Science and Technology minor requirements.

2015 Add GEOG2056 Climate Change & Human History to GST major and minor electives.
Lower the course level of GEOG4400 Urban Geography to 3300 and add a prereq.
New Academic Program Proposal for the *Geographic Information System (GIS) Minor* (Co-sponsored with Nadimpalli Mahadev).
Change course name and prereq. of Geog2400 Computer Application in Geosciences (new name: Introduction to Geospatial Technology).

2013 Modify the requirements of the Geographic Science and Technology major.
Modify the requirements of the Geographic Science and Technology minor.
Change program's name from "Geography" to "*Geographic Science and Technology*".

2012 Raise the course level of GEOG 3500: Geographic Information System.
Lower the course level of GEOG 4800: Computer Cartography.
Add alternative prerequisites of GEOG 3200: US and Canada.

2010 Change of Geography major elective requirements.
Change of Geography minor requirements.
Adding LAS designations for GEOG3400, 4400, and 4800.

2009 Change of Geography major core requirements.
Removing GOEG4820 Cartography II from course list.

2008 GEOG4800 name change (old: Cartography I; new: Computer Cartography); adding new LAS designations for GEOG1000, 1100, 2400, and 3500.

2007 Adding LAS designations for GEOG2400 and GEOG3500.

INPUT TO STUDENT SCHOLARLY ACTIVITIES

2024 Apr. Faculty sponsor of four oral presentations by 7 students in the Undergraduate Conference on Research and Creative Practice.
Pres. 1: *Navigating the Digital Equity Gap in Fitchburg Using GPS and GIS* (2nd Place Award of Oral Presentation)
Pres. 2: *Digital Navigator Internships with Fitchburg Youth Innovation Center*
Pres. 3: *Tackling Digital Equity Gap with Youths and Elders in Fitchburg*
Pres. 4: *My Teaching Practicum Experience in Geospatial Technology Classes*

2023 Apr. Created the EGS Study Abroad Scholarship and donated $500 to support students with no financial assistance in funding their study-abroad trip to Peru.

2023 Apr. Faculty sponsor of a student's oral presentation *GIS Internship with Town of Shirley* in the Undergraduate Conference on Research and Creative Practice.

2022 Apr. Faculty sponsor of 3 students' oral presentations in the Undergraduate Conference on Research and Creative Practice.
Pres. 1: *Field Survey Projects using GIS and GPS Technologies*
Pres. 2: *Mapping Conserved Lands in the Freedom's Way National Heritage Area*
Pres. 3: *GIS Internship with the MassDEP*

2020 Feb. Co-author and faculty sponsor of a student poster presentation *From Student Researcher to Mentor: Assessing the Health of the Nashua River in Massachusetts* in Ocean Sciences Meeting 2020, San Diego, CA.

2019 Apr. Faculty sponsor of six oral presentations by 5 students in the 10th Undergraduate Conference on Research and Creative Practice.
Pres. 1: *Geography Internship with the Leominster Department of Planning & Development* (2nd Place Award of Oral Presentation)
Pres. 2: *GIS Internship with the Snow-riders of the Nashaway* (3rd Place Award of Oral Presentation)

Pres. 3: *Designing and Printing a 3D Model of the Nashua River Watershed*
Pres. 4: *The Analysis of the Land Use and Land Cover of the Nashua River Watershed*
Pres. 5: *Simulations of the Nashua River Flooding in Fitchburg*
Pres. 6: *Mapping the Opioid Epidemic in Fitchburg*

2019 Feb. Faculty sponsor of two poster presentations by 2 students at the Sciences of Limnology and Oceanography Annual Conference in San Juan, Puerto Rico.
Pres. 1: *The Analysis of the Land Use and Land Cover of the Nashua River Watershed*
Pres. 2: *Simulations of the Nashua River Flooding in Fitchburg, MA*

2018 Oct. Faculty sponsor of an oral presentation *GIS Analysis of Land Use and Potential Flooding in the Nashua River Watershed* by 2 students at the NEURISA Annual Conference in Beverly, MA

2018 Apr. Faculty sponsor of a poster presentation *Application of GIS in Assessing the Health of the Nashua River* by 2 students in the 6th Annual Environmental Research Colloquium in Boston, MA

2018 Apr. Faculty sponsor of four oral presentations by 6 students in the 9th Undergraduate Conference on Research and Creative Practice.
Pres. 1: *Application of GIS in Assessing the Health of the Nashua River*
Pres. 2: *Studying Public Health in Fitchburg Using GIS*
Pres. 3: *GIS Internship with City of Gardner*
Pres. 4: *Adventure does the Soul Good: Why every person should spend time abroad*

2018 Apr. Hosted GIS Club event of guest talk by Susan Smiley and Cliff McMullan of the Snow Riders of the Nashaway Snowmobile Association of Mass.

2017 Nov. Faculty sponsor of 2 students to present *Public Recreational Spaces and Physical Activity in North Central MA* at the Active Living CHIP Group Meeting, Fitchburg.

2017 May. Hosted GIS Club event of the guest talk by Jassy Bratko, Director of Land Protection at North County Land Trust.

2017 Apr. Faculty sponsor of two oral presentations by 3 students in the 8th Undergraduate Conference on Research and Creative Practice.
Pres. 1: *GIS Mapping and Analysis for the Reimagine North of Main project.*
Pres. 2: *GIS Internships with MRPC and Ayer DPW*

2017 Feb. Organized the conservation restriction training program for 6 students with the Mount Grace Land Conservation Trust in Athol, MA

2016 Nov. Organized GIS Club event of *Fitchburg GIS Night* at Clark Univ. with19 students

2016 Apr. Organized GIS Club event: *GIS After Undergrad*, presented by Henry Mros

2016 Apr. Faculty sponsor of five oral presentations by 9 students in the 7th Undergrad Conference on Research and Creative Practice.
Pres. 1: *GIS Internship with the Ayer Department of Public Works* (First Place Award for Oral Presentation);
Pres. 2: *GPS Survey of Healthy-Heart Trails - A Service-Learning Term Project of GEOG 2400* (Tied Third Place Award for Oral Presentation);
Pres. 3: *Neighborhood Property Mapping and Analysis using GIS.*
Pres. 4: *Transportation Geography Internship with Montachusett Regional Planning Commission*.
Pres. 5: *Land Conservation and GIS Internships with North County Land Trust*

2016 Sponsored Huy Vo, CS student minoring in GIS, for the creation of the GIS Club.

2015 Nov. Hosted two guest talks: *GIS and the History, Development and Planning of Gardner*, and *GIS, Thematic Mapping and Current Projects in Gardner* by Rachael Catlow, GIS Coordinator, City of Gardner

2015 Apr. Faculty sponsor of an oral presentation: *Inventorying Farmland with the North County Land Trust Using GIS* by 3 students in the 6th Undergraduate Conference on Research and Creative Practice

2015 Supervised 13 students' volunteer work in the *North Central Mass Farmland Inventory Project* by request of Janet Morrison, Executive Director of NCLT

2015 Feb. Organized a presentation to the GeoClub and BioClub: *Lessons Learned from One Graduate's Tour through the Working World* by Scott Lehto, alumnus and GIS consultant for the Kenerson Group

2014 Apr. Faculty sponsor of two oral presentations by 2 students in the 5th Undergraduate Conference on Research and Creative Practice.
Pres. 1: *Predicting New England Bound Hurricane by Offshore Location*
Pres. 2: *GIS Internship with the Fitchburg Wastewater Department*

2013 Apr. Faculty sponsor of three oral presentations by 4 students in the 4th Undergraduate Conference on Research and Creative Practice.
Pres. 1: *TravTime Traffic Congestion Study in the Montachusett Region*
Pres. 2: *Mapping Hotspots of Crime and Traffic Violation in Fitchburg*
Pres. 3: *Urban Structure Study of Fitchburg, MA*

2012 Apr. Faculty sponsor of two oral presentations by 3 students in the 3rd Undergraduate Conference on Research and Creative Practice.
Pres. 1: *GIS Analysis for the Project: Bringing Broadband to North Central MA*
Pres. 2: *GPS Survey of Community Trails*

2011 Apr. Faculty sponsor of two oral presentations by 4 students in the 2nd Undergraduate Conference on Research and Creative Practice.
Pres. 1: *My Involvement in the Project – Bring Board Band to North Central MA*
Pres. 2: *Mapping Stone Walls in the Crocker Conservation Area Using GPS and GIS*

2011 Feb-Apr. Supervised 9 students in assisting North County Land Trust (NCLT) to document the stone walls in the Crocker Conservation Area in Fitchburg

2010 Apr. Faculty sponsor of an oral presentation by 1 student in the 1st Undergrad Conference on Research and Creative Practice: *GPS Mapping of Fitchburg Watershed Trails – A Crocker Center Civic Engagement Project.*

2010 Spring. Supervised 9 students' volunteer work in assisting Leominster Trail Stewards in assessing trail conditions in Leominster

DEPARTMENTAL SERVICES

2021-2025 Departmental Curriculum Committee (Chair in AY 2021-22 and 2024-25)

2021-2022 Most Valuable Advisor (MVA), selected through the Center for Teaching & Learning advising survey across the campus.

2021-2022 Chair of the Peer Evaluation Committee for Dr. Elyse Clark's 4th year reappointment

2021-2022 Peer Evaluation Committee for Dr. Jared Vanasse's 2nd year reappointment

2019-2020 Chair of the Peer Evaluation Committee for Dr. Elyse Clark's 2nd year reappointment.

2019-2020 Departmental self-study and external review

2010-2020 Departmental Assessment Committee

2006-2020 Departmental Curriculum Committee

2017-2018 Chair of the Search Committee (brought in Dr. Elyse Clark)

2017-2018 Peer Evaluation Committee for Dr. Liz Gordon's Chair Evaluation

2015-2016 Leader of the establishment of the Geospatial Technology Research Lab (Science 317)

2014-2015 Acting Chair in Spring 2015; Leader of the departmental self-study and external review, and of the major overhaul of the departmental webpage.

2014-2015 Peer Evaluation Committees for Dr. Bruce Duncan's Chair Evaluation and for Dr. Reid Parsons's 2nd year reappointment.

2013-2014 Peer Evaluation Committee for Dr. Liz Gordon's promotion to associate professor

2012-2013 Search Committee (brought in Dr. Reid Parsons)

2007-2008 Departmental self-study

2006-2007 Search Committee (brought in Dr. Liz Gordon)

CONTRIBUTIONS TO THE UNIVERSITY COMMUNITY

INTERDISCIPLINARY SERVICES

2024-2025	Contributed to the creation of the Latino Studies for Social and Environmental Justice major program.
2022-2023	Contributed to the creation of the Data Analytics minor program.
2019-2022	Contributed to the creation of the Digital Media Innovation major program.
2019-2020	Contributed to the creation of the MBA concentration of Supply Chain Management & Logistics.
2015-2019	Co-created the Environmental Public Health major program. Program approved by the BHE on March 12, 2019, and started running in Fall 2019.
2017-2018	Co-created the GIS Crime Mapping & Analysis minor program. In collaboration with Dr. Marcel Beausoleil of Behavioral Sciences
2014-2015	Co-created the GIS minor program. In collaboration with Dr. Nadimpalli Mahadev of Computer Science

COMMITTEE SERVICES

2023-2025	Academic Policies Committee
2018-2019	Library Advisory Committee
2017-2018	Crocker Center Advisory Board
2016-2017	Equity and Diversity Committee
2015-2016	Academic Policies Committee
2015 Fall	Peer Evaluation Committee for Dr. Billy Samulak's 2nd year reappointment
2015 Fall	Peer Evaluation Committee for Dr. Mathangi Krishnamurthy's 4th year reappointment
2014-2015	Ruth Butler Grant Committee
2014-2015	Academic Policies Committee
2013-2014	Student Conduct Board
2012-2013	Harrod Lecture Committee
2011-2012	International Advisory Committee
2010-2011	International Advisory Committee
2010-2011	Ruth Butler Committee
2009-2010	International Advisory Committee
2009-2010	Library Advisory Committee
2008-2009	Student Affair Committee
2007-2008	Equity and Diversity Committee
2007-2008	Technology Advisory Committee (Educational Enhancement Subcommittee)
2006-2007	Technology Advisory Committee

CAMPUS EVENT SERVICES

2006-2025	Annual services at Open House and Future Falcon Day
2019	Dec. Panel speaker at the Center for Faculty Scholarship discussion of "If I Knew Then What I Know Now: Balancing a 4/4 Course Load with an Active Research Agenda"
2019	Sep. Panel speaker at the Information Session on Scholarship and Research
2019	May. Panel speaker at the Crocker/CTL Civic Engagement Institute at the ideaLab.
2017	May. Mentor to new faculty members in the Summer Civic Engagement Institute.
2017	Apr. Panel speaker to the Mount Wachusett Community College Gateway to College program dual enrollment students.
2015	Nominator of Scott Lehto, the 2015 FSU Young Alumni Recognition Awardee

Reid Allen Parsons

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Amherst, MA 01002 rparson4@fitchburgstate.edu

Education

2010 **Ph.D., Earth Science (Planetary Science)**, University of California, Santa Cruz
Thesis Topic: Recent climate change on Mars (advisor: F. Nimmo)

2005 **B.S., Science of Earth Systems**, Cornell University (Magna Cum Laude with Distinction in Research)
Study Abroad: Earth and Environmental Science Hawai'i Field Program

Appointments

9/2021 - present **Associate Professor**, Earth & Geographic Sci., *Fitchburg State Univ.*
9/2013 - 9/2021 **Assistant Professor**, Earth & Geographic Sci., *Fitchburg State Univ.*
9/2017 - 9/2019 **Project Associate Research Professor**, University Museum, *Univ. of Tokyo*
*1/*2012 - 8/2013 **Postdoctoral Fellow**, *NASA Ames Research Center; Advisor: Dr. Jeff Moore.*
1/2011-12/2011 **Postdoctoral Researcher**, *UCSC; Advisor: Dr. Francis Nimmo*
1/2010-3/2010 **Instructor**, Planetary Discovery, *UCSC*
10/2008-11/2009 **Instructor**, Teaching Seminar, *UCSC*
4/2008-6/2008 **Teaching Assistant**, Geomorphology, *UCSC*
1/2006 - 3/2007 **Teaching Assistant**, Planetary Discovery, *UCSC*
6/2004-8/2004 **Undergraduate Research Assistant**, Univ. of Minnesota, *Minneapolis, MN*
4/2004 **GIS Volunteer**, Natural Resource Conservation Service, *Waimea, HI*
5/2003-8/2003 **GIS Technician**, Bureau of Land Management, *Meeker, CO*

Awards/Contributions

2022 NASA Mars Data Analysis Program Grant (PI)
"Using glacial moraine sequences on Arsia and Pavonis Mons to constrain recent climate change events on Mars by employing an ice sheet model"

2018 Voting member: NASA's Mars Data Analysis Program grant selection panel.

2018 NASA Mars Data Analysis Program Grant (Co-I)
"Determining martian debris-covered glacier flow history from high-resolution morphology and flow modeling"

2016 & 2015 Fitchburg State Univ. Special Projects Grant Awardee

2015 NASA Mars Data Analysis Program Proposal Reviewer

2014 NASA Mars Data Analysis Program Grant (Co-I)
"A Coupled Geophysical and Modeling Analysis of Mid-Latitude Glaciers on Mars"

2013 Session Chair: Lunar and Planetary Science Conference, Houston, TX

2009 - pres. Reviewer for Journals: Icarus, Geophysical Research Letters, International Journal of Glaciology

2009 NSF Doctoral Dissertation Enhancement Program Grant

2009 Center for the Origin, Dynamics, and Evolution of Planets Travel Grant

2008 Water's Award (for best yearly Ph.D. thesis proposal in Earth & Planetary Sciences Dept, UCSC)

2005 Distinguished Undergraduate Researcher, Cornell University

Membership in Professional Associations

2004 - present American Geophysical Union Member
2004 - present Geological Society of America

Professional Development

2022 Educational Resources as the Means to Enhance Integrative Learning, Workshop hosted by AAC&U held in Providence, RI (Nov. 1-2)

2014 Exploring ENVI : Training course on the ENVI Software package for Remote Sensing image analysis hosted by the developer, Exelis Vis in Boulder, CO (Oct. 14 - 16)

2014 Workshop of Early Career Geoscience Faculty (sponsored by On the Cutting Edge; National Association of Geoscience Teachers), held in College Park, MD (June 22 - 26)

Courses Taught @ Fitchburg State Univ.

Earth Systems Science
Geology (LAB)
Environmental Geology
Honors Seminar in Environmental Science
Planetary Atmospheres
Planetary Science
Geomorphology (LAB)
Remote Sensing
Geographic Perspectives on Conservation

Courses Taught @ UCSC

Planetary Discovery
Teaching Seminar (TA training)

Peer-Reviewed Publications in Professional Journals

Levy, J.S., C.I. Fassett, J.W. Holt, R.A. Parsons*, W. Cipolli, T.A. Goudge, M. Tebolt, L. Kuentz, J. Johnson, F. Ishraque, B. Cvijanovich, I. Armstrong, (2021) Surface boulder banding indicates martian debris-covered glaciers formed over multiple glaciations,* Proceedings of the National Academy of Sciences, 118 (4) e2015971118; *https://doi.org/10.1073/pnas.2015971118*

Parsons, R.A., T. Kanzaki, R. Hemmi, and H. Miyamoto, (2020) *Cold-based glaciation of Pavonis Mons, Mars: Evidence for moraine deposition during glacial advance,* Progress in Earth and Planetary Science, Vol. 7, 13. https://doi.org/10.1186/s40645-020-0323-9 **(open access)**

Hemmi, R., H. Miyamoto, and R.A. Parsons (2018), *Geological activities on present-day Mars and implications for future Mars missions* [in Japanese]. Planetary People, 27(3), 152-162.

Parsons, R.A. and H. Miyamoto, (*2018) Optimizing Change Detection for Planetary Remote Sensing Datasets,* Journal of Physics: Conf. Series 1036 (012004), September 10–13, 2017, Kyoto, Japan.

Parsons, R.A. and J. W. Holt (2016) *Constraints on the formation and properties of a Martian lobate debris apron: Insights from high-resolution topography, SHARAD radar data, and a numerical ice flow model*. Journal of Geophysical Research: Planets, Vol.121, doi:10.1002/2015JE004927.

Parsons, R.A., J.M. Moore, and A.D. Howard (2013). *Evidence for a short period of hydrologic activity in Newton crater, Mars, near the Hesperian-Amazonian transition*. Journal of Geophysical Research: Planets, Vol. 118, 1-12, doi:10.10002/jgre.20088.

Parsons, R.A., F. Nimmo, and H. Miyamoto, (*2011). Constraints on martian lobate debris apron evolution and rheology from numerical modeling of ice flow,* Icarus*, Vol. 214,* pp. 246-257, *doi:10.1016/j.icarus.2011.04.014*.

Parsons, R.A. and F. Nimmo, (2010) *Numerical modeling of Martian gully sediment transport: Testing the fluvial hypothesis*, Journal of Geophysical Research: Planets, Vol. Vol. 115, doi:10.1029/2009JE003517.

Parsons, R.A. and F. Nimmo, (2009) *North-south asymmetry in martian crater slopes*, Journal of Geophysical Research: Planets, Vol. 114 ,doi:10.1029/2007JE003006.

Parsons, R.A., F. Nimmo, J. W. Hustoft, B. K. Holtzman, D. L. Kohlstedt, (2008) *An experimental and numerical study of surface tension-driven melt flow*, Earth and Planetary Science Letters, 267, pp. 548-557.

Invited Talks

Cold-based glaciation at Pavonis Mons, Mars: Evidence for moraine deposition during glacial advance, Japan Geoscience Union, May 2019, Chiba, Japan.

Predicted Flow Rates for Martian Mid-latitude Ice Deposits, Japan Geoscience Union, May 2018, Chiba, Japan.

Optimizing Change Detection for Planetary Remote Sensing Datasets, High-Dimensional Data-Driven Science Conference, Sept. 2017, Kyoto, Japan.

Climate Change on the Red Planet, Public Talk, Sept. 2016, Fitchburg State University, MA, USA.

Water in the Middle of Martian History: Evidence from glaciers and stream-cut valleys, Institute of Geophysics and Planetary Physics Seminar, Feb. 2013, Univ. of California, Santa Cruz, USA.

Young fluvial valleys on Mars: constraining the water source using quantitative geomorphology, Division of Geological and Planetary Sciences: Kliegel Lectures in Planetary Sciences, April 2012, California Institute of Technology, Pasadena, CA, USA.

Numerical modeling of Martian gully sediment transport: Testing the fluvial hypothesis, American Geophysical Union Fall Meeting, Dec. 2009, San Francisco, CA, USA.

Where is Mars' Ice? Constraints from impact craters and lobate debris aprons on a mid-latitude reservoir, Search for Extra-Terrestrial Intelligence: Public Talks, Sept. 2009, Mountain View, CA, USA.

Thick ice deposits at mid-latitudes on Mars, Seminar at the Earthquake Research Institute, July 2009, University of Tokyo, Japan.

Oral Presentations @ Lunar and Planetary Science Conference, Houston, TX, USA

2019 *Cold-based Glaciation and Moraine Deposition at Pavonis Mons, Mars*

2016 *Evidence for Variable Ice Accumulation or Viscosity of Martian Glaciers on Opposing Slopes of Euripus Mons, Mars from Numerical Ice Flow Modeling*

2014 *Determining the Age and Physical Properties of Martian Lobate Debris Aprons using High-resolution Topography, SHARAD Observations, and Numerical Ice Flow Modeling: A case study at Euripus Mons*

2013 *Glaciation at Euripus Mons, Mars: Insights from combining numerical ice flow modeling, SHARAD observations and high-resolution topography*

2009 *Fluvial discharge rates of Martian gullies: Slope measurements from stereo HiRISE images and numerical modeling of sediment transport*
2008 *Martian gully slope measurements made using HiRISE stereo pairs*
2007 *North-south asymmetry in Martian crater slopes*

Poster Presentations

@ Japanese Geophysical Union Meeting, Makuhari Messe, Chiba, Japan

5/2019 Detecting surface changes on Mars using principle component analysis of repeat imagery

@ Lunar and Planetary Science Conference, Houston, TX, USA

3/2021 Martian Moraines and Ice Flow Models: A Path to Constraining Amazonian Obliquity?

3/2018 Influence of Debris Cover on the Temperature of Buried Martian Ice Deposits

@ American Geophysical Union Fall Meeting, San Francisco, CA, USA

2010 Constraints on lobate debris apron evolution and rheology from numerical modeling of ice flow

2005 Surface Tension-Driven Melt Flow in the Upper Mantle: An Experimental and Modeling Approach to Studying Capillary Flow of Silicate Melt through an Olivine Matrix

Conference Abstracts:

Parsons, R.A..Finding the Ice's Bottom: Estimating Ice thickness using Basal Stress and Surrounding Topography in Martian Mid-latitude Ice Deposits, 51st Lunar and Planetary Science Conference, March 16-20, 2020, The Woodlands, TX.

J. S. Levy, W. Cipolli, Ishraque, F., M. Tebolt, C. I. Fassett, Parsons, R.A., & J. Holt. Boulder Bands on Lobate Debris Aprons: Does Spatial Clustering Reveal Accumulation History for Martian Glaciations?, 51st Lunar and Planetary Science Conference, March 16-20, 2020, The Woodlands, TX.

Parsons, R.A. R. Hemmi, Miyamoto, H., and T. Kanzaki. Cold-based Glaciation and Moraine Deposition at Pavonis Mons, Mars, 50th Lunar and Planetary Science Conference, March 18-22, 2019, The Woodlands, TX.

Parsons, R.A. and Miyamoto, H. Change Detection in Repeat Imagery Using Principle Component Analysis, 49th Lunar and Planetary Science Conference, March 19-23, 2018, The Woodlands, TX.

Parsons, R.A. Predicted Flow Rates for Martian Mid-latitude Ice Deposits, Proceedings of the Japan Geoscience Union Meeting, PPS07-09, May 20–24, 2018, Chiba, Japan.

Parsons, R.A. and Miyamoto, H. Influence of Debris cover on the Temperature of Buried Martian Ice Deposits, 49th Lunar and Planetary Science Conference, March 19-23, 2018, The Woodlands, TX.

Parsons, R.A. Optimizing Change Detection for Planetary Remote Sensing Datasets, Proceedings of the International Meeting on "High-Dimensional Data-Driven Science" (HD3-2017) September 10–13, 2017, Kyoto, Japan

Parsons, R.A.; Holt, J. W., Evidence for Variable Ice Accumulation or Viscosity of Martian Glaciers on Opposing Slopes of Euripus Mons, Mars from Numerical Ice Flow Modeling. 47th Lunar and Planetary Science Conference, The Woodlands, TX, March, 2016; Abstract #1462.

Petersen, E. I.; Holt, J. W..; Parsons, R.A.; Levy, J. S.; McKinnon, E.A. Regional Variations in Martian Debris-Covered Glaciers Understood through Flow Modeling and Multifaceted Data Analysis. 46th Lunar and Planetary Science Conference, The Woodlands, TX, March, 2015; Abstract #2253.

Petersen, E. I.; Holt, J. W.; Levy, J. S.; Parsons, R.A. A Synthesis of Radar Sounding, Geomorphic Characterization, and Ice Flow Modeling to Understand Regional Differences between Lobate Debris Aprons in Deuteronilus Mensae. 8th Mars Conference, Pasadena, CA, July 2014; Abstract #1451.

Parsons, R.A.; Holt, J. W., Determining the Age and Physical Properties of Martian Lobate Debris Aprons using High-resolution Topography, SHARAD Observations, and Numerical Ice Flow Modeling: A case study at Euripus Mons, 45th Lunar and Planetary Science Conference, The Woodlands, TX, March, 2014; Abstract #1484.

Barnhart, C. J.; Parsons, R.A.; Benson, S. M., Potential Coastal Pumped Hydroelectric Energy Storage Locations Identified using GIS-based Topographic Analysis, American Geophysical Union Fall Meeting, San Francisco, CA, Dec, 2013; Abstract H21J-1208.

Parsons, R.A.; Holt, J. W., Glaciation at Euripus Mons, Mars: Insights from Combining Numerical Ice Flow Modeling, SHARAD Observations and High-Resolution Topography, 44th Lunar and Planetary Science Conference, The Woodlands, TX, March, 2013; Abstract #1840.

Morgan, A. M.; Howard, A. D.; Hobley, D. E. J.; Matsubara, Y.; Moore, J. M.; Parsons, R.A.; Williams, R. M. E.; Burr, D. M.; Hayes, A. G.; Dietrich, W. D, Alluvial Fans of Northern Chile as an Analog to Mars, 44th Lunar and Planetary Science Conference, The Woodlands, TX, March, 2013; Abstract #2833.

Moore, Jeffrey M.; Howard, A. D.; Parsons, R.A.; Hobley, D. E. J., Hesperian-Amazonian Transition Mid-latitude Valleys: Markers Of A Late Martian Climate Optima? American Astronomical Society, DPS meeting #44, #404.06

Parsons, R.A.; Moore, J. M.; Howard, A. D., Water Volume and Timescale Estimates for Valley Formation During the Late Hesperian to Early Amazonian, Mars, Comparative Climatology of Terrestrial Planets, held June 25–28, 2012, in Boulder, Colorado.#1675.

Parsons, R.A. Moore, J. M.; Howard, A. D., Hydrology of Hesperian/Amazonian-Aged Valleys in Newton Basin, Mars: How Much Water for How Long? 43rd Lunar and Planetary Science Conference, held March 19–23, 2012 at The Woodlands, Texas. #1659.

Parsons, R.A., F. Nimmo, and H. Miyamoto, Constraints on lobate debris apron evolution and rheology from numerical modeling of ice flow, American Geophysical Union Fall Meeting, San Francisco, CA, Dec, 2010; Abstract EP41B-0695.

Parsons, R.A., F. Nimmo, and H. Miyamoto, Constraining the timing of lobate debris apron emplacement at Martian mid-latitudes using a numerical model of ice flow, 41st Lunar and Planetary Science Conference, Houston, TX, March, 2010; Abstract #1463.

Parsons, R.A. and F. Nimmo, Numerical modeling of Martian gully sediment transport: Testing the fluvial hypothesis (Invited), American Geophysical Union Fall Meeting, San Francisco, CA, Dec, 2009; Abstract EP53F-04.

Parsons, R.A. and F. Nimmo, Fluvial discharge rates of Martian gullies: Slope measurements from stereo HiRISE images and numerical modeling of sediment transport, 40th Lunar and Planetary Science Conference, Houston, TX, March, 2009; Abstract #1947.

Parsons, R.A., F. Nimmo, and M. Kreslavsky, Fluvial discharge rates of Martian gullies: Slope measurements from stereo HiRISE images and numerical modeling of sediment transport, American Geophysical Union Fall Meeting, San Francisco, CA, Dec, 2008; Abstract P41A-1350.

Parsons, R.A. and F. Nimmo, Martian gully slope measurements made using HiRISE stereo pairs, 39th Lunar and Planetary Science Conference, Houston, TX, March, 2008; Abstract #2328.

Parsons, R.A. and F. Nimmo, North-South Asymmetry in Martian Crater Slopes, American Geophysical Union Fall Meeting, San Francisco, CA, Dec, 2007; Abstract P33A-1019.

Parsons, R.A., F. Nimmo, and M. D. Ellehoj, North-South Asymmetry in Martian Crater Slopes, Seventh International Conference on Mars, Pasadena, CA, July, 2007; Abstract #3359.

Parsons, R.A., F. Nimmo, and M. D. Ellehoj, North-South Asymmetry in Martian Crater Slopes, 38th Lunar and Planetary Science Conference, Houston, TX, March, 2007; Abstract #2108.

Parsons, R.A., J. W. Hustoft, B. K. Holtzman, D. L. Kohlstedt, and F. Nimmo, Surface Tension-driven Melt Flow in the Upper Mantle: An Experimental and Modeling Approach to Studying Silicate Melt Diffusion Through an Olivine Matrix, 37th Lunar and Planetary Science Conference, Houston, TX, March, 2006; Abstract #2446.

Hart, S. D., V. C. Gulick, S. T. Ishikawa, C. J. Barnhart, and R. A. Parsons, Detailed Topographic and Morphometric Analysis of Lyot's Central Peak Gullies, 41st Lunar and Planetary Science Conference, Houston, TX, March, 2010; Abstract #2662.

Hart, S. D., V. C. Gulick, R. A. Parsons, and C. J. Barnhart, Gully Slopes and Discharges on Lyot Crater's Central Peak, 40th Lunar and Planetary Science Conference, Houston, TX, March, 2009; Abstract #2349.

Irwin, R. P., C. M. Fortezzo, S. E. Tooth, A. D. Howard, J. R. Zimbelman, C. J. Barnhart, A. J. Benthem, C. C. Brown, R. A. Parsons, Origin of Theater-Headed Tributaries to Escalante and Glen Canyons, Utah, 40th Lunar and Planetary Science Conference, Houston, TX, March, 2009; Abstract #1644.

Hart, S. D., R. A. Parsons, C. J. Barnhart, and V. C. Gulick, Central Peak Gully Formation and Morphologies on Mars, American Geophysical Union Fall Meeting, San Francisco, CA, Dec, 2008; Abstract P41A-1348.

Irwin, R. P., C. M. Fortezzo, S. E. Tooth, A. D. Howard, J. R. Zimbelman, C. J. Barnhart, A. J. Benthem, C. C. Brown, R. A. Parsons, Origin of Theater-Headed Tributaries to Escalante and Glen Canyons, Utah: Analogs to Martian Valley Networks, American Geophysical Union Fall Meeting, San Francisco, CA, Dec, 2008; Abstract P41A-1351.

Curriculum Vitae

Deborah Stone, Ph.D., MS, RN
Associate Professor of Nursing & Chair M.S. Forensic Nursing Program
School of Health & Natural Sciences, Department of Nursing
Fitchburg State University, Fitchburg, MA, 01420

Telephone: 978 505 0694 Email: dstone1@fitchburgstate.edu

EDUCATION

University of Massachusetts, Lowell, PhD Nursing, Health Promotion	2010 - 2017
Fitchburg State College, Master of Science in Forensic Nursing	2002 - 2006
Texas Woman's University, Bachelor of Science in Nursing (BS)	1981 - 1985

HONORS AND AWARDS

Sigma Theta Tau – Eplison Beta Chapter	2006
Fitchburg State College, MS in Forensic Nursing (GPA 3.9)	2006
American Nurses Credentialing Center Content Expert	2013
National League of Nursing Foundation for Nursing Education Scholarship	2014

PROFESSIONAL EXPERIENCE

Tenured granted	09/01/2021
Chair Graduate Program in Forensic Nursing	2017 - present
Associate Professor, Fitchburg State University, Department of Nursing	2019 - present
Assistant Professor, Fitchburg State University, Department of Nursing	2015 - 2018
Adjunct faculty Fitchburg State University, Master of Forensic Nursing Program	2007 - 2017
Instructor, Fitchburg State University, Department of Nursing	2007 - 2015
DeLuca & Weizenbaum, Providence, RI	2007
Legal Nurse Consultant	
Abigail Williams & Associates, Worcester, MA	2006 - 2007
Legal Nurse Consultant	
Emerson Hospital, Concord, MA	2002 - 2016
Registered Nurse, Emergency Department	
Clinical Preceptor	2003 - 2004
Christus Santa Rosa Children's Hospital, San Antonio, TX	2000 - 2002
Registered Nurse, Emergency Department	
Children's Advocacy Center, Lewisville, Texas	1997 - 2000
Program Coordinator, Sexual Assault Nurse Examiner Program	
Clinical Preceptor, Adult and Child SANE Program	1998 - 2002
Trinity Medical Center, Carrollton, Texas	1995 - 2000
Registered Nurse and Charge Nurse, Emergency Department	

Parkland Memorial Hospital, Dallas, Texas	1988 - 1994
Registered Nurse and Charge Nurse Emergency Department	
Clinical Preceptor	1992 - 1994
Baylor Rehabilitation Hospital, Dallas Texas	1985 - 1988
Registered Nurse	

PROFESSIONAL ACTIVITIES

Member – Education Committee, International Association of Forensic Nurses	2019 - 2022
Director at Large- International Association of Forensic Nurses,	
Greater New England Chapter	2016 - 2018
President- International Association of Forensic Nurses,	
Greater New England Chapter	2008, 2009
President Elect - International Association of Forensic Nurses,	2007
Greater New England Chapter	
Member - American Nurses Association	2010 to present
Member - International Association of Forensic Nurses	2005 to present
Greater New England Chapter	
Member – American Association of Legal Nurse Consultants	2005
Member - Massachusetts Nurses Association	2002 to present
Diplomat - American Board of Forensic Nursing	2000 - 2008
The American College of Forensic Examiners International	
Fellow- American College of Forensic Examiners International	2009 - 2017
Member – International Association of Forensic Nurses	1997 - 2017
Member - Emergency Nurses Association	1990 - 2005

CERTIFICATIONS AND SPECIALIZED TRAINING

Pediatric Advanced Life Support	2001 - 2018
Office of the Attorney General, State of Texas	1999 - 2003
Certified Adult Sexual Assault Nurse Examiner	
Office of the Attorney General, State of Texas	1999 - 2003
Certified Pediatric Sexual Assault Nurse Examiner	
Office of the Attorney General, TX, Certified Sexual Assault Nurse Examiner	1997
Certified Trauma Nurse Provider	
Trauma Nurse Core Curriculum Provider	1995 - 2006
Certified Emergency Nurse Pediatrics	1995 - 2006
Emergency Nurse Pediatric Course	
Advanced Cardiac Life Support	1988 - 2017
Basic Life Support	1985 - 2020

PRESENTATIONS, WORKSHOPS AND LECTURES

Stone, D. (2024). *Breaking the Chains: A Community Health Response to Human Trafficking.* Presented to third year medical students in their Population and Community Health Clerkship UMass Chan Medical School, Worcester, MA.

Stone, D. A. (2022) *Human Trafficking: A Community Approach.* Presented at the Community Health Center, Fitchburg, MA.

Stone, D. A. (2017) *Intimate Partner Violence Among the Late Adolescent and Young Adult Population: A Secondary Data Analysis*. Presented at the International Association of Forensic Nurses 25th Annual International Conference on Forensic Nursing Science and Practice. Toronto, Ontario, Canada.

Stone, D. A. (2016). *Intimate Partner Violence Among the Late Adolescent and Young Adult Populations: A Critical Social Theory Perspective.* Presented at Sigma Theta Tau International, Epsilon Beta Chapter's Spring Lecture. Fitchburg, Massachusetts.

Stone, D. A. (2016). *Intimate Partner Violence Among the Late Adolescent and Young Adult Populations: A Critical Social Theory Perspective.* Presented at Eastern Nursing Research Society 28th Annual Scientific Poster Presentation. Pittsburg, Pennsylvania.

Stone, D. A. (2015). *The Conundrums of Using Secondary Data Analysis to Explore Adolescent Victims of Violence.* Presented at Eastern Nursing Research Society 27th Annual Scientific Presentations. Washington, D. C.

Stone, D. A. (2014). *SANE Nursing: The Good, The Bad, & The Ugly.* Presented at Fitchburg Antiviolence Education's (FAVE) 1st Educational Forum. Fitchburg State University, Fitchburg, MA.

Stone, D. A. (2009). *Un-witnessed Cardiac Arrests in Long Term Care, Advisory Ruling to Guide Nursing Practice*. Presented at the Massachusetts Senior Care Association's, panel presentation for the Massachusetts Board of Registration in Nursing. Marlborough, MA.

Stone, D. A. (2008). *Offender Evaluator: A Unique Role of Forensic Nursing*. Presented at the 16th Annual Scientific Assembly of the International Association of Forensic Nurses. Salt Lake City, Utah.

Stone, D. A. (2007). *Female Sex Offenders- The State of the Science.* Presented at the 15th Annual Scientific Assembly of the International Association of Forensic Nurses. Dallas, Texas.

Stone, D. A. (2007). *Legal Nurse Consulting*. Presented on-line for course NURS 8000, Introduction to Forensic Nursing at Fitchburg State University, Fitchburg, MA.

Stone, D. A. (2007). *Female Sexual Perpetrators.* Presented on-line for course NURS 8000, Introduction to Forensic Nursing at Fitchburg State University, Fitchburg, MA.

Stone, D. A. (2005). *The Legal Nurse Consultant and Malpractice Cases in a Plaintiff's Firm.* Presented at…

Stone, D. A. (2002). *Care of the Sexual Assault Patient in the Commonwealth of Massachusetts using a Sexual Assault Kit.* Presented to Winchester Hospital's Department of Emergency Medicine

Stone, D. A. (2000). *Sexual Assault Victims: Tips for Law Enforcement.* Presented to the Lewisville Police Department. Lewisville, Texas.

TEACHING AND SERVICE

Fitchburg State University Teaching Responsibilities:

Public Health in the USA (*Undergraduate Level)*	2021, 2022, 2023
Global Public Health-International Education Abroad: Costa Rica	2018, 2019, 2022
Senior Student Clinical Instructor *(Undergraduate Level)* Community Health Nursing Selected Nursing Practicum	2018 to present
Forensic Nursing Capstone *Blackboard online course developer & instructor (Graduate Level)*	2019 to present
Caring for Forensic Populations *Blackboard online course developer & instructor (Graduate Level)*	2014 to present
Context and Roles for Advanced Nursing Practice *Blackboard online course instructor (Graduate Level)*	2013
Introduction to Forensic Nursing *Blackboard online course instructor (Graduate Level)*	2007 - 2018
Nursing Theory *Blackboard online course instructor (Graduate Level)*	2012 - 2019
Caring for Victims and Perpetrators *Blackboard online course guest lecture (Graduate Level)*	2007 - 2008
Advanced Clinical Concepts *Blackboard online course developer and instructor* *(Graduate Level)*	2007 - 2008
Nursing Research *(Undergraduate Level)* Nursing Research *(Graduate Level)*	2012 - 2016 2011 - 2018
Senior Student Clinical Instructor *(Undergraduate Level)* Chronic Illness	2007
Nursing Foundations *(Undergraduate Level)*	2007 – 2008
Medical – Surgical Nursing I *(Undergraduate Level)*	2007 – 2009
Didactic and Clinical Instructor	

Medical - Surgical Nursing I clinical	2009 – 2010 2010 - 2017
Foundations Lab *(Undergraduate Level)*	2008 - 2016
Health Assessment Lab *(Undergraduate Level)*	2008 - 2016

RESEARCH ACTIVITIES

Intimate Partner Violence Among the Late Adolescent and Young Adult Populations: A Critical Social Theory Perspective	2017
An Integrative Review of the Behaviors of Female Sexual Offenders	2007
Female Sexual Offenders, Master of Science Research Project	2006

EXTRAMURAL SERVICE ACTIVITIES

External manuscript reviewer for Content Connections.com	2008

COMMUNITY SERVICE

Community Health Network of North Central Massachusetts, (CHNA9)	
Co-Chair Healthy & Safe Relationships Group	2017 to present
Fitchburg Antiviolence Education (FAVE)	2010 - 2016
Pathways' AIDS Care Project	2008
AIDS Prevention Worcester	2007 – 2009
Massachusetts Reserve Corps – Volunteer	2007 to present
Search Committee Nursing Faculty Fitchburg State University	2014, 2015, 2017, 2018, 2019, 2021

AMANDA TAYLOR, MPH

A: Holden, MA 01520 | P: 530.902.6372 | E: aedonev@gmail.com

SUMMARY

Public Health Professional with specific experience teaching undergraduate public health coursework and improving health and well-being of maternal and child health (MCH) population through systems-level outreach activities. Demonstrated success in class design, program development/assessment, project coordination, and meeting/event planning. Proactive leader with solid interpersonal and organizational skills and an eye for continuous improvement. Proficient in Windows/Macintosh platforms and Microsoft Office. Core competencies include:

Class Design | In-Person and Remote Teaching | Staff Supervision/Hiring | Information Outreach
Needs Assessment | Research | Public Speaking/Presentations | Information Promotional Materials
Webpage Creation/Maintenance | Copy Editing | Inventory | Scheduling

EXPERIENCE

FITCHBURG STATE UNIVERSITY – Fitchburg, MA | Aug 2023 – Present
Adjunct Faculty, Environmental, Geographic, and Public Health Sciences Department

- Classes taught:
  - Fundamentals of Epidemiology
    - Designed course for Public Health majors.
    - Concentration on understanding and application of the study of the causes of negative health outcomes using situationally relevant examples. These include: COVID, asthma, diabetes, smoking, gun violence, and health disparities caused by social determinants of health such as race and income.
  - Public Health Strategies
    - Developed new course for Public Health majors in their senior year.
    - Focus on learning and applying the 10 Essential Public Health Strategies. Facilitated research, discussion, and professional interviews around public health assessment, policy development, and assurance.
  - Public Health in the US
    - Introduction to Public Health designed for Public Health and Nursing majors.
    - Study and discuss public health in historical and current settings in the US. Focus on the Social Determinants of Health, health disparities, and health inequities. Emphasis on the broad spectrum of fields that impact public health.

WORCESTER STATE UNIVERSITY – Worcester, MA | Jan 2020 – Present
Adjunct Faculty, Health Sciences Department

- Classes taught:
  - Human Sexuality and Sex Ed
    - Created course for Health Education majors.
    - Focused on content related to human sexuality and public health programming aimed at health education.
    - To enable students to sit for the Certified Health Education Specialist exam, the course was developed to address three of the seven areas of responsibility for community health education.
  - Mental Health Education
    - Course for Public Health and Psychology majors.
    - Study the current state of mental health in America through the lens of public health. Students create an intervention program for a population considered at-risk for certain negative mental health outcomes. For example: A program targeted at new mothers to address Post-Partum Depression.
  - Personal Health
    - Devised course to meet the school's Individual and Community Wellness general education requirement.
    - Concentration on holistic health, including the six pillars of health: physical, social, intellectual, emotional, spiritual, and environmental.
- Taught courses in-person, remotely, and hybrid.
- Remote content was delivered both synchronously and asynchronously.
- Experience teaching direct study.

P: 530.902.6372 | E: aedonev@gmail.com

UNIVERSITY OF WISCONSIN–MADISON – Madison, WI | Aug 2011 – Dec 2014
Associate Outreach Specialist, Maternal & Child Health Programs – Waisman Center (Aug 2012 – Dec 2014)

- Contributed to Wisconsin Genetic Systems Integration Hub project funded by Title V grant:
  - Researched, developed, and coordinated genetic information and training for non-genetics health care providers, improving treatment for patients with various diseases and genetic disorders.
  - Organized and facilitated biannual statewide meetings for Wisconsin Genetics Advisory Committee, including planning, logistics, food and venue selection, invitations, and speaker housing/transportation.
  - Coordinated genetics-related conferences for 100+ attendees, including state conference for pediatricians and other primary care professionals and annual Upper Midwest Clinical Genetics Conference; handled event logistics, invited speakers, and sent out invitations.
  - Conducted information outreach at Wisconsin Association for Perinatal Care Conference, developing brochures and takeaways for attendees, including Genetic Systems Integration Hub.
  - Created/distributed promotional and info-based materials and developed/maintained state genetics webpage.
- Sponsored state MCH leadership retreat for Leadership Education in Neurodevelopmental & Related Disabilities (LEND), including selecting venue and caterer, sending invitations, managing dietary restrictions, planning events, introducing speakers, and conducting follow-up needs assessment via email survey.
- Coordinated LEND training, giving interns firsthand experience screening children for developmental milestones.
- Created and distributed various surveys using Qualtrics and edited grants, published items, and interoffice documents.

Public Health Intern, Maternal & Child Health LEND – Waisman Center (Aug 2011 – Jul 2012)

- Worked with Act Early Campaign designed to screen children early for potential developmental disabilities, facilitating play sessions for preschool children. Coordinated/supervised interns and created resource materials for parents.

AMERICAN FAMILY CHILDREN'S HOSPITAL – Madison, WI | Apr 2010 – Dec 2011
Graduate Student, Child Health Advocacy – Kohl's Safety Center

- Completed master's practicum and capstone project, including researching, developing, and implementing Safety for Special Kids injury prevention program focused on providing adaptive equipment and free safety consultations for families with children with special health care needs.

UNIVERSITY OF CALIFORNIA, DAVIS – Davis, CA | Apr 2007 – Feb 2008
Laboratory Manager, Department of Molecular & Cellular Biology

- Maintained chemical stock and equipment, complying with state/federal environmental and safety regulations.
  - Created and implemented inventory system for all chemicals, reagents, and plasmids used and stored in lab.
- Hired and supervised student workers, scheduled laboratory meetings, and maintained lab webpage.

EDUCATION

UNIVERSITY OF WASHINGTON SCHOOL OF PUBLIC HEALTH – Seattle, WA | 2011
Master of Public Health, Specializing in Maternal & Child Health

UNIVERSITY OF CALIFORNIA, DAVIS – Davis, CA | 2007
Bachelor of Science in Biological Sciences, Emphasis in Neurobiology, Physiology & Behavior (NPB)

Jared Vanasse

Department of Earth and Geographic Sciences
Fitchburg State University
Antonucci Science Complex
160 Pearl St.
Fitchburg MA, 01420, USA
+1 (401) 523-3454
jvanass3@fitchburgstate.edu

EDUCATION

September 2012: Ph.D. in Physics
University of Massachusetts, Amherst

Ph.D. Thesis: "Parity-Violation in *nd* Interactions"
Advisor: Barry Holstein

February 2010: Master of Science in Physics
University of Massachusetts, Amherst

May 2007: B.Sc. in Physics, summa cum laude, B.Sc. in Mathematics, summa cum laude
University of Rhode Island

POSTDOCTORAL EXPERIENCE

1. September 2015-2017 Postdoctoral Researcher at Ohio University: working with Daniel Phillips
2. September 2012-2015 Postdoctoral Researcher at Duke University: working with Roxanne Springer

FACULTY POSITIONS

1. September 2022-present Adjunct Faculty at Duke University
2. September 2021-present Member of Duke University graduate faculty
3. September 2019-present Assistant Professor of Physics at Fitchburg State University
4. September 2017-2019 Visiting Assistant Professor of Physics at Stetson University

TEACHING AS INSTRUCTOR OF RECORD

Summer' 08: Physics 151 course, Undergraduate Mechanics course (UMASS Amherst)
For engineers.

Spring' 15: Mini course for graduate students on *Few-Body Non-Relativistic Systems* (Duke University)

Fall' 16: Physics 2051, Undergraduate Mechanics course for physicists and engineers (Ohio University)
For physicists and engineers.

Fall' 17: Physics 121P, Undergraduate Mechanics course for life science majors (Stetson University)

Fall' 17: Physics 343 Quantum Mechanics I, Undergraduate class (Stetson University)

Spring' 18: Physics 443 Quantum Mechanics II, Undergraduate class (Stetson University)

Spring' 18: Physics 112P Stars, Galaxies and Cosmology, Undergraduate class (Stetson University)

Fall' 18: Physics 332 Electricity and Magnetism, Undergraduate class (Stetson University)

Fall '18: Physics 121P, Undergraduate Mechanics course for life science majors (Stetson University)

Spring' 19: Physics 113P Energy for a Sustainable Future, Undergraduate class (Stetson University)

Spring' 19: Physics 432 Electromagnetic Theory, Undergraduate class (Stetson University)

Fall '19: Physics 121P, Undergraduate Mechanics course for life science majors (Stetson University)

Fall' 19: Physics 322 Mechanics I, Undergraduate class (Stetson University)

Fall' 19: Physics 385 Independent Research, Undergraduate research in cold atoms (Stetson University)

Spring' 20: Physics 122P Undergraduate Electricity and Magnetism course for life science majors (Stetson University)

Spring' 20: Physics 422P Mechanics II, Undergraduate class (Stetson University)

Fall' 20: (2 sections) Physics 2300, Undergraduate Mechanics course for life science majors (Fitchburg State University)

Spring' 21: Physics 2300, Undergraduate Mechanics course for life science majors (Fitchburg State University)

Spring' 21: (2 sections) Physics 2400, Undergraduate Electricity and Magnetism course for life science majors (Fitchburg State University)

Fall' 21: (3 sections) Physics 2300, Undergraduate Mechanics course for life science majors (Fitchburg State University)

Fall' 21: (Directed Study) Physics 2700, Undergraduate Calculus based Electricity and Magnetism course (Fitchburg State University)

Spring' 22: (2 sections) Physics 2400, Undergraduate Electricity and Magnetism course for life science majors (Fitchburg State University)

Spring' 22: Honors 2250, Honors Seminar in Environmental Science, Energy for a Sustainable Future (Fitchburg State University)

Fall' 22: (3 sections) Physics 2300, Undergraduate Mechanics course for life science majors (Fitchburg State University)

Spring' 23: (2 sections) Physics 2400, Undergraduate Electricity and Magnetism course for life science majors(Fitchburg State University)

Spring' 23: Honors 2250, Honors Seminar in Environmental Science, Energy for a Sustainable Future (Fitchburg State University)

Spring' 23: (Directed Study) Physics 2600, Undergraduate Calculus based Mechanics course (Fitchburg State University)

Spring' 23: (Directed Study) Physics 2700, Undergraduate Calculus based Electricity and Magnetism course (Fitchburg State University)

Fall' 23: (2 sections) Physics 2300, Undergraduate Mechanics course for life science majors (Fitchburg State University)

Spring' 24: (2 sections) Physics 2400, Undergraduate Electricity and Magnetism course for life science majors (Fitchburg State University)

Spring' 24: Physics 2000, Astronomy, Introductory Astronomy course (Fitchburg State University)

Fall' 24: (2 sections) Physics 2300, Undergraduate Mechanics course for life science majors (Fitchburg State University)

Fall' 24: Physics 2000, Astronomy, Introductory Astronomy course (Fitchburg State University)

TEACHING

Fall' 07: (4 classes) Physics 133 lab sections, Undergraduate Mechanics Lab (UMASS Amherst)
For life science majors.

Spring' 08: (4 classes) Physics 151 discussion sections, Undergraduate Mechanics course (UMASS Amherst)
For engineers.

Fall' 08: (4 classes) Physics 151 discussion sections, Undergraduate Mechanics course (UMASS Amherst)
For engineers.

Spring' 09: (2 classes) Physics 151 discussion sections, Undergraduate Mechanics course (UMASS Amherst)
For engineers.

Fall' 09: TA for Physics 131, Undergraduate Mechanics Course (UMASS Amherst)
For life science majors.

Spring' 10: TA for Physics 132, Undergraduate Electricity and Magnetism course (UMASS Amherst)
For life science majors.

Fall' 11: TA for Physics 125, Undergraduate Optics Course (UMASS Amherst)
For liberal arts majors.

Spring' 12: TA for Physics 132, Undergraduate Electricity and Magnetism course (UMASS Amherst)
For life science majors.

Summer' 12: Physics 133 lab section, Undergraduate Mechanics Lab (UMASS Amherst)
For life science majors.

Fall' 17: (2 classes) Physics 121P lab sections, Undergraduate Mechanics Lab (Stetson University)
For life science majors.

Fall' 17: (2 classes) Physics 141P lab sections, Undergraduate Mechanics Lab (Stetson University)
For physicists and engineers.

Spring' 18: (2 classes) Physics 122P labs, Undergraduate Electricity and Magnetism Lab
(Stetson University) For life science majors.

Spring' 18: (2 classes) Physics 112P Stars, Galaxies and Cosmology Lab (Stetson University)

Fall' 18: (2 classes) Physics 121P lab sections, Undergraduate Mechanics Lab (Stetson University)
For life science majors.

Fall' 18: (2 classes) Physics 141P lab sections, Undergraduate Mechanics Lab (Stetson University)
For physicists and engineers.

Spring' 19: (2 classes) Physics 113P Energy for a Sustainable Future Lab (Stetson University)

Spring' 19: (2 classes) Physics 142P lab sections, Undergraduate Electricity and Magnetism Lab
(Stetson University) For physicists and engineers.

Fall' 19: (2 classes) Physics 141P lab sections, Undergraduate Mechanics Lab (Stetson University)
For physicists and engineers.

Fall' 19: (2 classes) Physics 121P lab sections, Undergraduate Mechanics Lab (Stetson University)
For life science majors

Spring' 20: (3 classes) Physics 122P lab sections, Undergraduate Electricity and Magnetism Lab
(Stetson University) For life science majors.

Spring' 20: (2 classes) Physics 142P lab sections, Undergraduate Electricity and Magnetism Lab (Stetson University) For physicists and engineers.

PUBLICATIONS

1. Xincheng Lin and Jared Vanasse
   Two-Body Triton Photodisintegration and Wigner-SU(4) Symmetry
   Sumbitted to Phys. Rev. C
   arXiv:2408.14602

2. Ha S. Nguyen and Jared Vanasse
   Tritium β decay and proton-proton fusion in pionless effective field theory
   Phys. Rev. C 110 (2024) 2, L021001
   arxiv:2405.07889

3. Xincheng Lin, Hersh Singh, Roxanne P. Springer, and Jared Vanasse
   Cold Neutron-Deuteron capture and Wigner-SU(4) Symmetry
   Phys. Rev. C 108 (2023) 4, 044001
   arXiv:2210.15650

4. Son T. Nguyen, Matthias R. Schindler, Roxanne P. Springer, and Jared Vanasse
   Large-N_C and renormalization group constraints on parity-violating low-energy coefficients for three-derivative operators in pionless effective field theory
   Phys. Rev. C 103 (2021) 5, 054004
   arXiv:2012.02180

5. Zichao Yang, Emanuele Mereghetti, Lucas Platter, Matthias R. Schindler, and Jared Vanasse
   Electric dipole mom8ents of three-nucleon systems in the pionless effective field theory
   Phys. Rev. C 104 (2021) 2, 024002
   arXiv:2011.01885

6. Julia Qin and Jared Vanasse
   Effective field theory analysis of boson-trimer bond lengths to next-to-leading order
   Phys. Rev. A 103 (2021) 2, 023333
   arXiv:2010.06105

7. Anna C. David and Jared Vanasse
   Time Reversal Violation in the Nd system and Large-N_C
   Phys.Rev.C 107 (2023) 2, 024001
   arXiv:1910.03133

8. Jared Vanasse
   Combining the large-N_C and low-momentum expansions to describe parity violation in few-nucleon systems
   PoS CD2018 (2019) 111 • Contribution to: CD18, 111

9. Jared Vanasse
Parity Violating Three-Nucleon Interactions at Low Energies and Large-N_C
Phys. Rev. C 99 (2019), 054001
arXiv:1809.10740

10. Jared Vanasse
Charge and Magnetic Properties of Three-Nucleon Systems in Pionless Effective Field Theory
Phys. Rev C98 (2018), 034003
arXiv:1706.02665

11. Jared Vanasse
Charge and Matter Form Factors of Two-Neutron Halo Nuclei in Halo Effective Field Theory at Next-to-leading-order
Phys. Rev. C95 (2017) no.2, 024318
arXiv:1609.08552

12. Jared Vanasse and Daniel R. Phillips
Three-nucleon bound states and the Wigner-SU(4) limit
Few Body Syst. 58 (2017) no.2, 26
arXiv:1607.08585

13. Arman Margaryan, Jared Vanasse, and Roxanne P. Springer
Non-relativistic Neutron Deuteron Scattering
Published in EPJ Web Conf. 113 (2016) 08012

14. Jared Vanasse
Three-Body Nuclear Systems in Pionless Effective Field Theory
Published in EPJ Web Conf. 113 (2016) 04025

15. Jared Vanasse
Three-body systems in pionless effective field theory
Int. J. Mod. Phys. E25 (2016) no.05, 1641002
arXiv:1609.03086

16. Arman Margaryan, Roxanne P. Springer, and Jared Vanasse
nd Scattering and the A_y puzzle to Next-to-next-to-next-to-leading Order
Phys. Rev. C93 (2016) no.5, 054001
arXiv:1512.03774

17. Jared Vanasse
Three-Body Bound States and the Triton Charge Radius; Perturbative Corrections to Next-to-next-to-leading order in Pionless Effective Field Theory
Phys. Rev. C95 (2017) no.2, 024002
arXiv:1512.03805

18. Matthias R. Schindler, Roxanne P. Springer, and Jared Vanasse
Large-N(c) limit reduces the number of independent few-body parity-violating low-energy constants in pionless effective field theory
Phys. Rev. C93 (2016) no.2, 025502
arXiv:1510.07598

19. Jared Vanasse and Matthias R. Schindler
Energy dependence of the parity-violating asymmetry of circularly polarized photons in $d\vec{\gamma} \to np$ in pionless effective field theory
Phys. Rev. C90 (2014) no.4, 044001
arXiv:1404.0658

20. Jared Vanasse, David A. Egolf, John Kerin, Sebastian König, and Roxanne P. Springer
^3He and pd Scattering to Next-to-Leading Order in Pionless Effective Field Theory
Phys. Rev. C89 (2014) no.6, 064003
arXiv:1402.5441

21. Jared Vanasse
Fully Perturbative Calculation of nd Scattering to Next-to-Next-to Leading Order
Phys. Rev. C88 (2013) no.4, 044001
arXiv:1305.0283

22. Jared Vanasse
Parity Violation in nd Interactions
Phys. Rev. C86 (2012) 014001
arXiv:1110.1039

23. Dan Liu, Jared Vanasse, Gerhard Muller, Michael Karbach
Generalized Pauli principle for particles with distinguishable traits
Phys. Rev. E 85 (2012) 011144
arXiv:1112.3011

24. Ping Lu, Jared Vanasse, Christopher Piecuch, Michael Karbach, Gerhard Muller
Statistically interacting quasiparticles in Ising chains
J. Phys. A: Math. Theor. 41 265003 (2008)
arXiv:0710.1687

TALKS

1. October 10 2024 Annual Fall Meeting of the Division of Nuclear Physics, *"Photon Interactions in Three-Nucleon Systems"*

2. September 1 2022 Fitchburg State University, Faculty Development Day, *"Fundamental Symmetries"*

3. January 24 2022 Institute for Nuclear Theory Workshop, Hadronic Parity Nonconservation II, *"Hardonic parity-violation in three-nucleon systems"*

4. October 13 2021 Annual Fall Meeting of the Division of Nuclear Physics, *"Status of Hadronic Parity Violation"*

5. October 30 2020 Annual Fall Meeting of the Division of Nuclear Physics, *"Fundamental Symmetry Violations in Nuclear Systems"*

6. July 22 2020 Institute for Nuclear Theory Program, Beyond-the-Standard-Model Physics with Nucleons and Nuclei, *"EDM's of light nuclei using pionless EFT"*

7. February 7 2020 Norwich University, *"Nuclei: Laboratories for Fundamental Symmetries"*

8. October 15 2019 Annual Fall Meeting of the Division of Nuclear Physics, *"Parity- and Time-Reversal-Violation in Nuclear Systems and the Large-N_C Expansion"*

9. February 8 2019 Assumption College, *"Fundamental Symmetries and the Search for New and Old Physics"*

10. September 18 2018 Ninth International Workshop on Chiral Dynamics, 2018, *"Combining the large-N_C and low-momentum expansions to describe parity violation in few-nucleon systems"*

11. July 13 2018 Institute for Nuclear Theory Program, Fundamental Physics with Electroweak Probes of Light Nuclei, *"Electroweak Probes of Three-Nucleon Systems"*

12. March 16 2018 Kalvi Institute for Theoretical Physics (KITP) Workshop on Hadronic Parity Nonconservation, *"Parity Violation in Three-Nucleon Systems"*

13. October 26 2017 Annual Fall Meeting of the Division of Nuclear Physics, *"Precision Electroweak Observables of Three-Nucleon Systems"*

14. June 30 2017 Institute for Nuclear Theory Program, Neutrinoless Double-beta Decay, *"Tritium-beta decay in pionless EFT"*

15. June 19 2017 Stetson University, *"How big is the proton?"*

16. April 26 2017 Ohio University Postdoctoral Symposium, *"Nuclear Theory: What Is It?"*

17. April 18 2017 Triangle Nuclear Theory Colloquium at Duke University, *"Short Range Effective Field Theory for Three-Body Nuclear Systems"*

18. October 25 2016 Kalvi Institute for Theoretical Physics (KITP) Program: Frontiers in Nuclear Physics, *"Effective Three-Body Nuclear Systems with Short-Range Interactions"*

19. May 30 2016 EMMI Rapid Reaction Task Force: The systematic treatment of the Coulomb interaction in few-body systems, *"Bound State Calculation in Three-Body Systems With Short Range Interactions"*

20. April 21 2016 Institute for Nuclear Theory Program, Nuclear Physics from Lattice QCD, *"Three-Body Systems with Short-Range Interactions"*

21. March 21 2016 Ohio State University, *"Three-Body Systems with Short-Range Interactions*

22. January 11 2016 EMMI Rapid Reaction Task Force: The systematic treatment of the Coulomb interaction in few-body systems, *"^{3}He and pd Scattering to Next-to-Leading Order in Pionless Effective Field Theory"*

23. October 29 2015 Annual Fall Meeting of the Division of Nuclear Physics, *"Energy dependence of the parity-violating asymmetry of circularly polarized photons in $d\vec{\gamma} \to np$ in pionless effective field theory"*

24. May 22 2015 21st International Conference on Few-Body Problems in Physics, *"Three-Body Nuclear Systems in Pionless Effective Field Theory"*

25. January 27 2015 Institute for Nuclear and Particle Physics Seminar at Ohio University Athens, *"Three-Body Nuclear Systems in Pionless Effective Field Theory"*

26. November 13 2014 invited talk: SESAPS meeting talk at University of South Carolina Columbia, *"Low Energy Few Body Hadronic Parity Violation"*

27. July 30 2014 Centro de Ciencias de Benasque Pedro Pascual: Bound states and resonances in Effective Field Theories and Lattice QCD calculations, *"Parity violation in nucleon-deuteron interactions"*

28. April 15 2014 Institute for Nuclear Theory Program, Universality in few-body systems: Theoretical challenges and new directions, *"Fully Perturbative Calculation of nd Scattering to Next-to-next-to-leading order"*

29. March 3 2014 University of South Carolina, *"Fully Perturbative Calculation of nd Scattering to Next-to-next-to-leading-order"*

30. October 22 2012 Institute for Nuclear Theory Program, Light Nuclei from first Principles, *"Parity-Violation in Neutron Deuteron Scattering in Pionless Effective Field Theory"*

31. June 22 2012 Triangle Nuclear Theory Colloquium at Duke University, *"Parity-Violation in Neutron Deuteron Scattering in Pionless Effective Field Theory"*

32. April 27 2012 University of Massachusetts-Nuclear Seminar, *"Hadronic Parity Violation"*

33. December 2 2011 University of Rhode Island Colloquium, *"Parity Violation in nd Interactions via Pionless EFT"*

34. November 19 2011 APS/NEC/AAPT/SPS meeting talk at University of Massachusetts Amherst, *"Hadronic Parity Violation"*

35. October 27 2011 Student Seminar, *"Two-Body Scattering, Three-Body Scattering and the Faddeev Equation"*

36. May 13 2011 Student Seminar, *"Parity-Violation in nd Scattering in Pionless EFT"*

37. May 3 2011 University of Massachusetts-Nuclear Seminar, *"Parity-Violation in nd Scattering in Pionless EFT"*

38. December 10 2010 Student Seminar, *"EFT for Dummies"*

POSTERS

1. October 17 2023 Fitchburg State University Science Symposium *"Cold Atom Efimov Towers"*

2. August 8 2016 Gordon Research Conference: *Photonuclear Reactions*
"Energy Dependence of the parity-violating asymmetry of circularly polarized photons in $\gamma d \to np$ in pionless effective field theory"

3. April 10 2015 APS joint workshop of GPMFC and GFB on *Tests of Fundamental Symmetries*
"Energy Dependence of the parity-violating asymmetry of circularly polarized photons in $\gamma d \to np$ in pionless effective field theory"

PROGRAMMING SKILLS

Mathematica, Matlab, C++, Fortran, Basic, and Latex

HONORS AND PROFESSIONAL SERVICE

1. Phi Beta Kappa

2. Sigma Pi Sigma

2. Co-organizer of SCET 2013 conference at Duke University

3. Organizer of EMMI Rapid Reaction Task Force (2016) *"The systematic treatment of the Coulomb interaction in few-body systems"* at the GSI Helmholtz Center for Heavy Ion Research in Darmstadt, Germany

4. A student who did research with me received a competitive Conference Experience for Undergraduates (CEU) travel grant to the 2019 Annual Fall Meeting of the Division of Nuclear Physics to present a poster on her research.

5. Served on a dissertation committee for doctoral candidate, Collin Malone, at Duke University. Dissertation title: *"Photodisintegration of ^{3}He and Supporting Experiments"*

6. Served on a prelim committee for doctoral candidate, Ha Nguyen, at Duke University.

7. Served on a dissertation committee for doctoral candidate, Son Nguyen, at Duke University. Dissertation title: *"Effective Field Theory Studies of Few Nucleon Systems: Fundamental Symmetry Violation, Electromagnetic Interactions, and Direct Detection of Dark Matter"*

8. Served on a dissertation committee for doctoral candidate, Xincheng Lin, at Duke University. Dissertation title: *"Effective Field Theory and Approximate Symmetries for Low-Energy Few-Body Systems"*

OUTREACH

1. May 13 2017 *Ohio Academy of Science: State Science Day 2017*, judged posters for junior high and high school students.

2. April 1 2017 *Family Science Day at Ohio University*, gave physics demonstrations.

3. March 18 2017 *Ohio District Science Fair* judge for posters of 5^{th} - 8^{th} graders.

4. November 7 2015 *Biennial Open House* for Ohio University Department of Physics and Astronomy. Showed angular momentum demonstrations to members of the public.

5. March 2 2022 *Wachusett Regional High School Science Fair*. Judged several physics based science projects.

6. March 1 2023 *Wachusett Regional High School Science Fair*. Judged several physics based science projects.

7. February 27 2024 *Wachusett Regional High School Science Fair*. Judged several physics based science projects.

JIANG YU, Ph.D.
Fitchburg State University
Fitchburg, MA 01420
Tel: 978-665-3380, Email: jyu@fitchburgstate.edu

POSITION

Professor of Physics, Physics, Fitchburg State University, Massachusetts, USA

EDUCATION

- Ph.D., Science Education (Concept Learning & Development in Physics), 1995, Western Michigan University, Kalamazoo, MI
- M.S., Physics (Theoretical Nuclear Physics), 1988, Western Michigan University, Kalamazoo, MI
- B.S., Physics (Particle Physics), 1983, University of Science and Technology of China, Hefei, Anhui, China

TEACHING

Professor of Physics, Fitchburg State University, Massachusetts, September 2008 – present.
Associate Professor of Physics, Fitchburg State University, Massachusetts, September 2002 – August 2008.
Assistant Professor of Physics, Fitchburg State University, Massachusetts, September 1996 – August 2002.
Adjunct Instructor (Physics), Physics Department, Western Michigan University, Kalamazoo, Michigan, 1986 – 1996.
Adjunct Instructor (Physics), Kalamazoo Valley Community College, Kalamazoo, Michigan, 1988 – 1996.
Lecturer (Physics), Physics Department, Tibetan University, Lhasa, Tibet, 1983 – 1986.

SERVICE TO PROFESSIONAL ORGANIZATION

Judge and Board member of the United States Invitational Young Physicists Tournament (USIYPT), January 2014 - present

SERVICE TO THE COLLEGE BOARD AP PHYSICS PROGRAM

Curriculum Adviser & Senior Reviewer for the AP Physics Course Audit Program, College Board, June 2008 – present
College Board Endorsed AP Physics Workshop Consultant, August 2005 – present
Member of the AP Physics Course Audit Scoring Guide Development Committee, February 2022 – April 2023
Member of the AP Physics Course Audit Scoring Guide Setting Committee, February 2019 – March 2020
Chief Reader Associate (one full term), AP Physics Exam Reading, College Board/Educational Testing Services, July 2013 – June 2017
Chief Reader (one full term) for the AP Physics Exam Reading, College Board/Educational Testing Services, July 2009 – June 2013
Chief Reader Designate for the AP Physics Exam Reading, CB/ETS, July 2008 – June 2009
Question Leader for the AP Physics Exam Reading, CB/ETS, June 2006 - June 2008
Table Leader for the AP Physics Exam Reading, CB/ETS, June 2003 – June 2005
AP Physics Exam Reader for the AP Physics Exam Reading, CB/ETS, June 2000 – June 2002
Member of the Physics 1 & Physics 2 Course Audit Standard Setting Committee, College Board, July 2012 – May 2014
Member of the AP Annual Conference Steering Committee, August 2010 – July 2013

WORKSHOPS GIVEN AND ONGOING

AP Physics Summer Institutes (week-long): Numerous Physics 1, Physics 2, and Physics C are delivered over the years, beginning in 1998 at Fitchburg State University and since 2005 four to eight institutes have been delivered annually at various universities and schools in the US and abroad (e.g., UAE) in June - August.

AP Physics One- or two-day Workshops: Numerous are given each year for the College Board as its endorsed AP workshop consultant, including national and international workshops outside of the USA. Also delivered workshops for NMSI member organizations such as Massachusetts Math & Science Initiative, A+ College Ready (Alabama), and Advance Kentucky.

AP Students Sessions: Numerous Saturday sessions are given for MMSI in Massachusetts and NMSI outside of Massachusetts.

Other non-AP Physics or physical science teacher workshops

PRESENTATION

Results of the AP Physics Exam Administration. AP Annual Conference, July, 2013 (Las Vegas, NV), 2012 (Orlando, FL), 2011 (San Francisco, CA), 2010 (Washington D.C.).

AP Physics Programs and Examinations, AP Affair, Shenzhen, China, March 6-8, 2011

Examination of the Massachusetts Science and Technology/Engineering Curriculum Framework Using GSL Objectives. The 3rd Annual Hawaii International Conference on Education, Honolulu, Hawaii, Jan. 3 – 7, 2005

An Inventory of Algebra, Trigonometry, and Analytical Geometry for Algebra/Trig Based College Introductory Physics Course, Williamston, MA, April 11-12, 2003

Conceptual oriented college introductory physics teaching: gains and recommendations. The XVIII GIREP Conference: PHYTEB2000, Barcelona, Spain, Aug. 27 – Sept. 1, 2000.

Teaching Physical Science To Pre-Service Elementary Teachers: An AAPT Model Course Developed Based On Physics Education Research. American Association of Colleges and Universities Conference: Rethinking Scientific Literacy in an Age Of Diversity And Specialization, Charleston, SC, April 13-15, 2000

PROFESSIONAL DEVELOPMENT

College Board Consultant Training, "AP Physics Summer Institutes & Workshops" New Orleans, LA, February 23-26, 2023
College Board Consultant Training, "AP Physics Summer Institutes & Workshops" Remote, February-May 2021, 2022
College Board Consultant Training, "AP Physics Summer Institutes" Fort Worth, TX, January 26-27, 2019
College Board Consultant Training, "AP Physics 1 & 2: Guided Inquiry Labs ," Chicago, IL, April 5-6, 2014
College Board Consultant Training, "AP Physics 1 & 2: Building Students' Reasoning Skills," Las Vegas, NV, Aug. 3-4, 2013
College Board AP Physics 1 & 2 Consultant Training: Framework & Course Description," Chicago, IL, April 19-21, 2013
College Board 2009-2010 Mentor Initiative, Henderson, NV, Aug. 6-9, 2009
TI-Nspire Conference for the College Board Consultants held by the Texas Instruments at Dallas, TX, Nov. 16 – 18, 2007.
College Board Consultant Training, Charlotte, NC, April 8-10, 2005
The Commonwealth Information Technology Initiative (CITI) workshop, "OBJECT ORIENTED DESIGN & ANALYSIS," Worcester State College, MA, June 2, 3, 9, 10, 2001.
Certificate, AAPT/NSF workshop, "Just in Time Teaching," AAPT/NES 1999 Fall Meeting at Norwich University, North Field, Vermont, November 5, 1999.
Certificate, NSF college faculty summer workshop, "Innovative Physics Experiments Workshop," Winston-Salem State University, Winston-Salem, North Carolina, July 26-31, 1998.
Certificate, NSF Chautauqua short course, "Promoting Active Learning in Introductory Physics Courses I," Honolulu, Hawaii, June 9-11, 1998.
Certificate, AAPT/NSF summer faculty enhancement workshop, "Powerful Ideas in Physical Science: A Model Course," Louisiana State university, Baton Rouge, Louisiana, May 24 - June 5, 1998

RESEARCH

Global Science Literacy, Geo/Physical Science Dept., Fitchburg State University, 1999 – 2003
Concept learning/conceptual change in physics learning, Center for Science Education, Western Michigan University, 1988 – 1996
Theoretical nuclear physics, shell model, Physics Department, Western Michigan University, 1986 – 1988
Higher energy physics, cosmic-ray physics, High Energy Physics Institute, Chinese Academy of Sciences, Beijing, China & Physics and Mathematics Department, Tibetan University, 1984 – 1986
Heavy-atomic experimental nuclear physics, Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou, China, 1983

PUBLICATION

Yu, J., Kaelin, J., & Frensley, J. (2023). Introductory Physics, Cutnell & Johnson, AP Edition. Manuscript in progress. Projected publication date is March 2023 by Wiley Publisher Co.
Yu, J. (2005). Examination of the Massachusetts Science and Technology/Engineering Curriculum Framework Using GSL Objectives, in *Proceedings of the 3rd Annual Hawaii International Conference on Education.* Honolulu: CD Production.
Yu, J. (2003). The application of GSL philosophy to science education in the People's Republic of China, in Mayer, V. (ed.), *The Applications of Global Science Literacy*. Columbus: The Ohio State University Press.
Yu, J. (2001). Conceptual oriented college introductory physics teaching: gains and recommendations, in Pints, R., & Suriqach, S. (eds.), *International Conference Physics Teacher Education Beyond 2000: Selected Contributions*. Paris: Elsevier Editions. Also in Pints, R., & Suriqach, S. (eds.), *Proceedings of the International Conference Physics Teacher Education Beyond 2000*. Barcelona: CD Production Calidos.
Halderson, D., Yu, M., and Yu, J. (1989). Structure of the first excited state of He(4), *Physical Review C*, vol. 39, no. 2.

Appendix G. Annual departmental budget fiscal years 2020-25.

Operating budget

Year	E00	F00	J00	K00	L00	M00	U00	Total
2020	600	4475	300	3000	200	250	200	9025
2021	600	3475	200	4100		2504	400	9025
2022	500	2500		5271		250	400	8921
2023	600	3000		4471		250	600	8921
2024	500	3000	300	4121		500	500	8921
2025	500	3400		4521			500	8921

Budget categories are as follows: E - administrative expenses, F - Facility operations (e.g., lab supplies); J – Operational expenses; K – Equipment purchase; L – Equipment repair; M – Student travel; U – Information Technology

Faculty Travel Funds

Year	B00
2020	2280
2021*	0
2022	1194
2023	1764
2024	1902
2025	1605

*no travel funds were distributed to departments in 2021 due to the pandemic

Appendix H. Equipment, materials, and technology

I. Technology

a. Hardware

All faculty have university-issued HP or Mac Laptops.
Additional HP computers are located in SCI317 for Geospatial Research (Huang)
iMac and Linux machines in SCI319 for Mars research (Parsons)
Mac Minis w/HP monitors in physics labs (student use)

b. Software

The Technology Department maintains licenses for industry-standard software for geospatial analysis: ArcGIS, ArcPro, and ENVI. The software can be accessed from the department's computer lab (SCI127), and students are able to access the server remotely using VMWare. Virtual Astronomy, used by Astronomy students, is also loaded onto this server.

2. Earth Science teaching equipment includes:
10x hand lenses, Silva compasses, Brunton compasses, Optical range finder, Abney level, Brunton tripods, Silva Teaching Aids, Rock hammers, Sledge hammers, Cold chisels, Sample bags, Drawing compasses, Digital calipers, Hubbard sun scale , binocular microscopes, triple beam balances, weight sets, transverse wave demonstrators, refractometers, hydrometers , thermometers, pH testers, sedimentators, Ohaus digital analytical balance, Ohaus field digital balance, solar radiation kits, ring stands, plastic sample tubes, hot plates, porosity, permeability hardware, assorted glassware and plasticware, sieves, weather meters, sling psychrometers, solar lab materials, high quality anemometer, digital flow meter, field rain gauge, soil thermometer, hygrometer, trundle wheel, Coriolis demonstrator, seismograph model, various rocks, mineral kits, density equipment, radioactive decay lab equipment (not radioactive), dendrochronology lab equipment, contour models, air pressure demonstrator, barycenter, capilary tube demonstrators, wave tanks, slinkies; Water level (100m), bailer, auger kit, HOBO water level and barometric loggers

3. Geographic science and map materials
GPS units: 24 Garmin eTrex Summits
Departmental Map Library of more than 500 maps (SCI124)
Army map reading materials, Earth Science Curriculum Project (ESCP) globes, Map projection models, Earth globes, Fitchburg quad 1988 maps, USGS topographic map pamphlets, USGS topographic map symbol pamphlets, miscellaneous maps, physiographic maps (several of different areas), stereo atlases, anaglyph book, landform feature books, stereo pair viewers, geoscopes, land use maps,

4. Astronomy materials
Two planet planetarium, star globes, moon globe, Edmund star finder, star globes, Solarscope, homemade parallax equipment, astrolabes

4. Physics equipment and materials

air supplies (4) (E, 3)
air tracks
assorted bar magnets
assorted capacitors
assorted clamps and bars
assorted low pressure spectrum tubes
assorted multimeters (15)
assorted old ammeters
assorted optics
assorted resistors
assorted tuning forks
Beck ballistic pendula (5)
Beck centripetal apparatus (8)
brand x air supply (1)
breadboards (8)
Cenco electric field plates (9)
Coulomb's Law apparatus (8) (A, 4)
diverse capacitors
diverse elementary optics
diverse large masses (four 2k, five 5k, two 1k)
diverse wires
Energizer recharger
Extech DC power supplies (8)
Extech DC power supply (24)
Fluke multimeters
force tables (8)
Foucault pendulum demonstrator
Pasco timer switch
Pasco voltage sensors
Radio Shack electret condenser microphones (8)
Ripple tank
Sargent Welch 75W AC/DC power supplies (9)
Savart's toothed wheel (for sound demonstration) (1)
compasses of diverse sizes
slinkies (5)
small scales (3 boxes)
spectrometers
spectrum tube power supplies
General vernier calipers (10)
HeNe lasers
hooked masses (7 sets)
hot plate (1)
inclined planes and potential to kinetic energy demonstrators
interferometer
large concave mirrors (2)
large display galvano-voltmeter
levels (11), plus angle finder (2)
long, narrow spring (2)
Ohaus triple beam balances
old mechanical calipers (9)
optics benches, short & long paired
Overbeck field mapping assembly (10) (A, 3)
Overbeck field mapping assembly (6)
Pasco air supplies
Pasco air tracks
Pasco ballistic pendula
Pasco basic optics kits (8)
Pasco basic optics light source
Pasco basic optics ray table (5)
Pasco basic optics system (24)
Pasco basic optics, ray optics
Pasco calorimeters
Pasco Coulomb's Law apparatus
Pasco drop box
stands and rods
stopwatches (9)
strobe light
sundry capacitors
sundry gliders
tall ring stands (7)
thermodynamic kits (4)
Ward's spectrum tube power supply (16) (B, 2 and 3)
Westward vernier caliper (1)
Radio Shack soldering gun
Radio Shack helping hands w/magnifier
Pasco free fall adapters
Pasco free fall balls acc.
Pasco function generators
Pasco high current sensor (7)
Pasco Interface 750 (9)
Pasco Interface 850 (8)
Pasco intro. rotational app. (8)
Pasco mass and hanger sets
Pasco mechanical vibrators (8)
Pasco mechanical wave driver
Pasco optics parts
Pasco optics ray tables
Pasco optics viewing screens
Pasco photogate head
Pasco photogate mounting brackets
Pasco photogate pulley system
Pasco resonance tubes
Pasco ring launcher (1)
Pasco RLC network
Pasco rotational motion apparatus (many
Pasco shoot the target accessory
Pasco sound sensors
Pasco stopwatches
Pasco table clamps
Pasco targets
Pasco temperature sensors
Pasco time of flight and accessories
Radio Shack rosin soldering flux
Radio Shack cushion feet
Radio Shack tip tinner & cleaner wire
Kelvin multimeter (2)
diverse tools (Craftsman)

Appendix I. Public Health Science Career Action Plan

FITCHBURG STATE UNIVERSITY

PUBLIC HEALTH SCIENCE

The Public Health Science program introduces students to factors that influence human health, methods and tools to analyze and evaluate public health data, and strategies to foster healthy and safe communities. Students choose from two concentrations: Environmental Public Health, which focuses on relationships between human health and the environment, or Public Health Practice, which focuses on social and economic determinants of health.

HOW TO USE THE ACTION PLAN

Use the Action Plan timeline to explore potential career paths and plan for success during and after your college experience. The Action Plan provides suggestions and a place to start the conversation with your advisor, but every person and every career journey is unique. Customize your own personal action plan using the **My Public Health Science Action Plan tool** (next page).

Maximize the time you have in college to prepare for your future. What do you want to do after you graduate with a multi-purpose Public Health Science degree?

The Action Plan helps you to come up with tentative goals (remember, it's ok if these change as you continue to learn more about yourself and the field!) so you can start working on short-term steps to help you reach those goals or shift directions. Remember, you do not have to do this all on your own, get the support you need from your department and from Student Support Services like **Career Services and Advising (CSA).**

POTENTIAL CAREER FIELDS

- Health Promotion and Communication
- Epidemiology and Public Health Research
- Public Health Education
- Environmental Health

WHY ENGAGE IN INDEPENDENT RESEARCH OR AN INTERNSHIP?

- Gain experience in career fields relating to public and environmental health
- Discover areas of interest
- Build your professional network

EXAMPLES OF PAST INTERNSHIPS & RESEARCH

- Martha's Vineyard Tick Program: Expanding public awareness of tick-borne diseases on the Vineyard
- MA Department of Environmental Protection: Mapping Brownfields
- National Africa College and Health Services

STUDENT HIGHLIGHT

KOLBY BEAUVAIS, '24

"My experience at Fitchburg State has been an exceptional time in my life. Furthering my education and personal and professional development have all been a direct result of the amazing opportunities and outstanding education provided by the faculty at Fitchburg State. This major has generated new fields of interest and prepared me for many future opportunities in both the public and private sectors. I have gained valuable experience, knowledge, and skills that combine Public Health policy and research with Geographic Information Systems platforms, which would never have happened had it not been for the amazing professors and advisors I have had during my time at Fitchburg."

Major: Environmental Public Health

CAREER COMPETENCIES

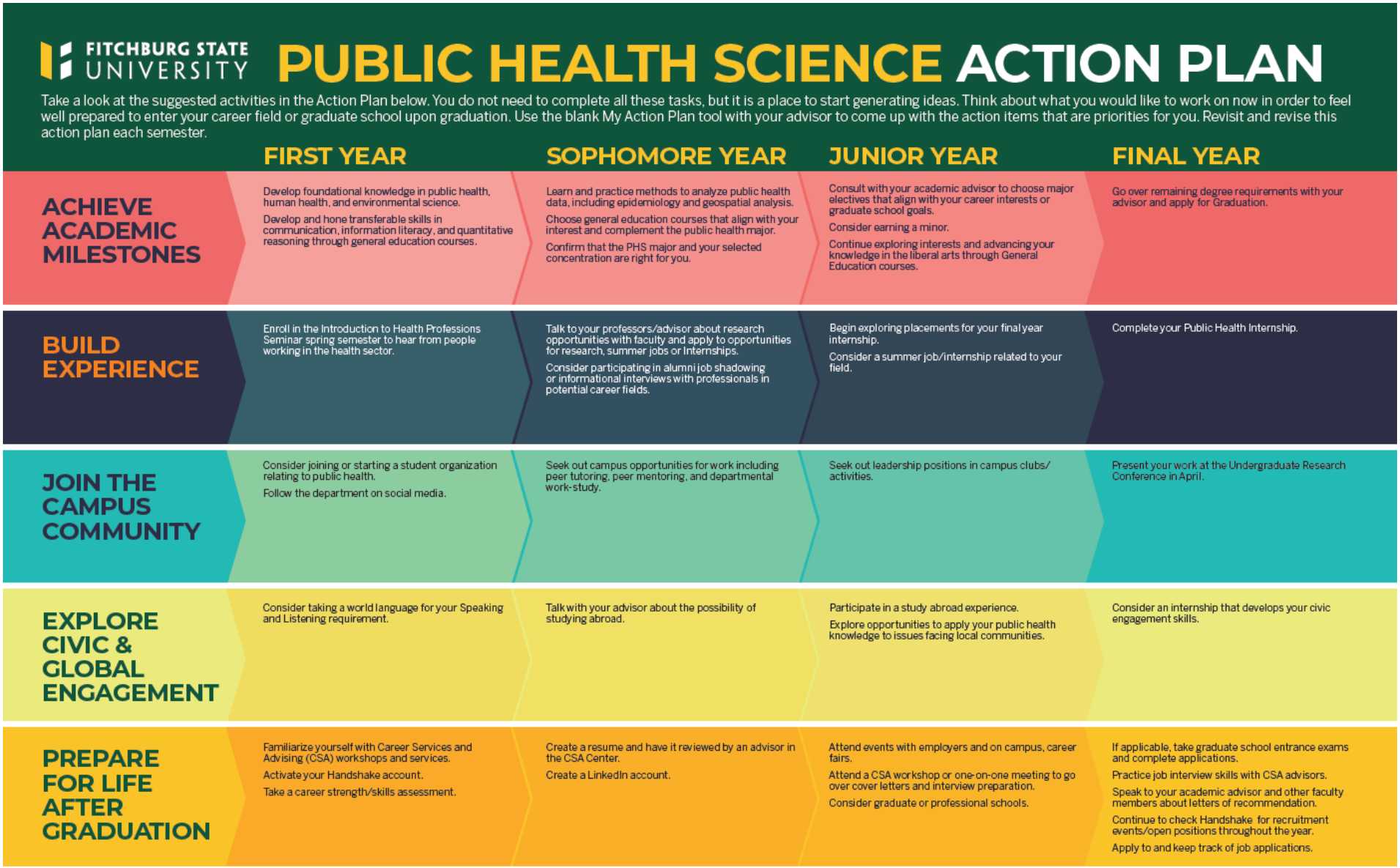
Knowledge of Public Health: Describe the socioeconomic, behavioral, biological, and environmental factors that affect human health. Discuss characteristics of health systems, opportunities for promoting health, and fundamental concepts of public health policy, health assessment and evaluation.

Think Critically about Public Health Challenges: Use appropriate methods and tools to analyze public health data and explain the importance of evidence-based approaches to solving public health problems. Synthesize evidence from various sources to address environmental and public health issues.

Information and Digital Literacy: Recognize what public health information is needed and have the ability to locate, evaluate, synthesize, and use that information effectively and ethically.

Communication: Effectively communicate information relating to public health through written, oral, and graphic expression to diverse populations, and use scientific evidence to support ideas.

Teamwork/Collaboration: Interact effectively in a group to solve public health problems, advocate for public health protections, and work productively with a diverse group of peers.


FITCHBURG STATE UNIVERSITY
PUBLIC HEALTH SCIENCE ACTION PLAN
Take a look at the suggested activities in the Action Plan below. You do not need to complete all these tasks, but it is a place to start generating ideas. Think about what you would like to work on now in order to feel well prepared to enter your career field or graduate school upon graduation. Use the blank My Action Plan tool with your advisor to come up with the action items that are priorities for you. Revisit and revise this action plan each semester.
FIRST YEAR
SOPHOMORE YEAR
JUNIOR YEAR
FINAL YEAR
ACHIEVE ACADEMIC MILESTONES
Develop foundational knowledge in public health, human health, and environmental science.
Develop and hone transferable skills in communication, information literacy, and quantitative reasoning through general education courses.
Learn and practice methods to analyze public health data, including epidemiology and geospatial analysis.
Choose general education courses that align with your interest and complement the public health major.
Confirm that the PHS major and your selected concentration are right for you.
Consult with your academic advisor to choose major electives that align with your career interests or graduate school goals.
Consider earning a minor.
Continue exploring interests and advancing your knowledge in the liberal arts through General Education courses.
Go over remaining degree requirements with your advisor and apply for Graduation.
BUILD EXPERIENCE
Enroll in the Introduction to Health Professions Seminar spring semester to hear from people working in the health sector.
Talk to your professors/advisor about research opportunities with faculty and apply to opportunities for research, summer jobs or Internships.
Consider participating in alumni job shadowing or informational interviews with professionals in potential career fields.
Begin exploring placements for your final year internship.
Consider a summer job/internship related to your field.
Complete your Public Health Internship.
JOIN THE CAMPUS COMMUNITY
Consider joining or starting a student organization relating to public health.
Follow the department on social media.
Seek out campus opportunities for work including peer tutoring, peer mentoring, and departmental work-study.
Seek out leadership positions in campus clubs/ activities.
Present your work at the Undergraduate Research Conference in April.
EXPLORE CIVIC & GLOBAL ENGAGEMENT
Consider taking a world language for your Speaking and Listening requirement.
Talk with your advisor about the possibility of studying abroad.
Participate in a study abroad experience.
Explore opportunities to apply your public health knowledge to issues facing local communities.
Consider an internship that develops your civic engagement skills.
PREPARE FOR LIFE AFTER GRADUATION
Familiarize yourself with Career Services and Advising (CSA) workshops and services.
Activate your Handshake account.
Take a career strength/skills assessment.
Create a resume and have it reviewed by an advisor in the CSA Center.
Create a LinkedIn account.
Attend events with employers and on campus, career fairs.
Attend a CSA workshop or one-on-one meeting to go over cover letters and interview preparation.
Consider graduate or professional schools.
If applicable, take graduate school entrance exams and complete applications.
Practice job interview skills with CSA advisors.
Speak to your academic advisor and other faculty members about letters of recommendation.
Continue to check Handshake for recruitment events/open positions throughout the year.
Apply to and keep track of job applications.
Note for Transfer Students: This plan is not rigid and you may be at different points in each section than your class year. This plan is just a starting point to discuss with your advisor and customize for the experiences you want to have before completing your degree.

Appendix J. Library

FITCHBURG STATE UNIVERSITY
AMELIA V. GALLUCCI-CIRIO LIBRARY

To: Public Health Faculty
CC: Jiang Yu, Chair
Elizabeth Gordon, Professor
Jannette McMenamy, Dean of Health & Natural Sciences
From: Jacalyn Kremer, Dean of Amelia V. Gallucci-Cirio Library
Lori Steckervetz, Outreach Librarian for Student Success
Date: December 6, 2024
Re: **DRAFT** Library resources and services to support the program review of the Public Health program

The New England Commission on Higher Education's Standard 7.22 calls for "access to Library and information resources, services, facilities, and qualified staff sufficient to support its teaching and learning environments and its research and public service mission as appropriate." The purpose of this report is to outline the current Amelia V. Gallucci-Cirio Library's resources, services and facilities that support the undergraduate in-person and remote programs in Public Health at Fitchburg State University. The material presented in this report will be discussed in a December 11, 2024 meeting with the Public Health faculty. Specific items we hope to discuss include:

- Partnering to develop your Public Health students' information literacy skills and leveraging library support for student research.
- Increase participation in the Library's course materials reserve service, especially the digital controlled lending service which provides digital access to course texts.
- Inclusion of Public Health equipment in the Technology Lending Library
- Exploring opportunities to support the creation and use of Open Educational Resources within Public Health courses
- Identifying opportunities to increase Public Health focused scholarly resources, such as monographs and journals, and their usage

This review is the first full library analysis for the Public Health program.

ABOUT Public Health at Fitchburg State University

Undergraduate Students with (first) major as Environmental and Public Health enrolled in Fall 2023	**32**

An analysis of the Library support needed for the Public Health undergraduate major as well as

undergraduates taking Public Health courses as non-majors is classified into three categories: resources, services and facilities.

RESOURCES for Public Health

Researchers in Public Health generally focus on the use of academic journals and monographs (books).

Journals and Databases

The Library collection development policy has been, and continues to be, to provide the core journals and databases appropriate for each discipline. Reviews of databases and journals are consulted, peer comparisons are conducted, and faculty input on the effectiveness of the resource is critical when considering new databases. The Library budget is relatively flat. Funds for new databases and/or journals come from reallocation of funds from canceled journals and databases with low usage.

The Amelia V. Gallucci-Cirio Library offers access to over 145,000 online journals in over 200 databases. Specifically, for the Public Health major and classes, we have the following core databases:

1. Ageline
2. Biological Abstracts/BIOSIS
3. Biological Science Collection
4. Environment Complete
5. Environmental Studies and Policy Collection
6. GreenFILE
7. MEDLINE
8. PubMed
9. PAIS (Public Affairs International Service Index added January 1, 2o25)
10. ProQuest Consumer Health
11. ProQuest Coronavirus Research Database
12. ProQuest Health & Medical Complete
13. PsycINFO

Public Health related journal titles in the following sub-categories may be viewed online by subject using the Library's "Journal Locator" tool (items in parenthesis are # of journals):

- Biology - General (402)
- Environmental Sciences (179)
- Geography (489)
- Medicine (4,612)

- Public Health (1,096)

See Library Table 1: Full-text Journal Databases by Disciplines related to Public Health. Usage statistics show the overall usage numbers are good.

The librarians conduct an annual review of journal subscriptions examining data on both print and online journals to which the Library directly subscribes (outside of the journals available through the databases). The annual cost per usage is determined by dividing the annual cost for the journal title by the number of times the journal was used in a year. Criteria have been established and applied that allowed the Library to cancel journals that are not being effectively used.

This journal review process allows the Library to increase journal offerings in needed areas as determined by interlibrary loan data, as well as to purchase large, multi-disciplinary eBook collections and new databases. More information about the new eBook collection is below.

The following new databases were added:

- PAIS (Public Affairs International Service Index) available January 1, 2025

Since the previous program review we have cancelled 1 database and 2 journals that were not being utilized:

- BioOne Database (cancelled in AY22)
- PolicyMap Database (cancelled in AY24)
- *Ear and Hearing* (cancelled in AY23)
- *Environment and Behavior* (cancelled in AY22)
- *Gerontology & Geriatrics Education* (cancelled in AY23)
- *Health* - (print subscription discontinued in AY23)
- *Infant Behavior & Development* (cancelled in AY23)
- *International Journal of Mass Emergencies and Disasters* (cancelled in AY23)
- *Research on Aging* (cancelled in AY23)

Books

A review of our print collection in the Library of Congress call number ranges specifically associated with Public Health shows 22,211 **print** books in our collection. See Library Table 2: Monograph Collection Description and Analysis.

In order to better meet the needs of both undergraduate, graduate, and faculty researchers, the Library sought to expand the available eBooks in our collection with eBook packages that include Public Health books. Effective in AY19, the Library subscribed to both the EBSCO Academic Complete eBook package and JSTOR EBA and DDA eBook collections. In AY21 we subscribed

to the ProQuest eBook Central DDA Collection utilizing a demand driven acquisition model. Through these 4 eBook packages we have added approximately 55,166 titles in Public Health and related areas (11,731 of these titles were published in the last 5 years and 26,367 were published in the last 10 years). This increases the number of books associated with Public Health in total to **77,377** books while providing on and off-campus access. This number of books is considered appropriate to support undergraduate level research and course work in Public Health.

Films and other Media

In 2018, the Library purchased a subscription to the academic streaming film database Kanopy. Over 6,804 videos are available in AY24 with subjects aligned with Public Health (this does include some duplicates). See Library Table 3: Films and Other Media Collection for a breakdown by category.

SERVICES for Public Health

Technology

Starting in Fall 2020, the Library offers a robust Technology Lending Library to ensure that all students, regardless of their financial means, are able to access the technology needed to do their course work, including digital cameras and podcasting equipment. The technology is available for checkout. Students also have access to a range of technology available in the Library building. We welcome a conversation about the addition of Public Health-related technology.

Library Instruction

For all academic departments in AY24, faculty librarians taught 176 synchronous research sessions and were embedded into 51 courses. Through these efforts, we reached over 4,100 students during the last academic year. With only 7 faculty librarians on staff, 4 of whom conduct the majority of instruction, the number of classes with research sessions and/or an embedded librarian is impressive and requests continue to increase.

Since AY22, librarians have collaborated with Public Health faculty members a total of 3 times to provide information/research literacy instruction as part of a Public Health course. Librarians have taught Public Health research sessions and were embedded in sections of the First Year Experience course.

Library Instruction	AY22	AY23	AY24
Total Embedded Courses	78	83	51
Embedded Public Health Courses	0	0	0
Total In-person/Onsync Sessions	140	171	176
In-person Public Health Sessions	0	1	2

See Library Table 4: Research Instruction for more information.

We welcome the opportunity to discuss how the Library can support your department's information literacy and research goals.

Library Research Guides

The Library offers 43 subject research guides plus 289 course specific guides, covering all disciplines at Fitchburg State. For Public Health, librarians have not yet created a subject research guide or subject research guides. We anticipate having a research guide created for Public Health by the end of the Spring 2025 semester.

The average subject guide for all subjects received 998 views in AY24 The Library' is interested in working with Public Health faculty to make a guide available within the Blackboard course management system for all Public Health courses.

Research Help

The Library offers one-on-one research help services in a variety of modes, including drop-in help at the Research Help Desk, making a research appointment with a librarian, email, and the online, chat messaging service. During the academic year, Fitchburg State librarians provide over 50 hours of research help per week. In AY24, librarians answered 1,449 research questions.

Additionally, the Library provides access to a 24/7 online chat service, which allows students to receive research help 24 hours per day, 7 days per week. The aggregate trends in research help appear in Library Table 5: Research Help. Please note that data on the use of the research help services specifically by Public Health are not available.

Course Reserves

The Library's Course Reserve system is well-used by the Fitchburg State community. The Library now offers traditional print, as well as online, digital course reserves through our controlled digital lending program. In AY24, Fitchburg State professors placed a total of 522 items (physical and digital) on reserve. Students checked out a total of 2,566 of reserve materials during the same period.

In Fall 2024, 1 Public Health professors put a total of 1 physical item on reserve. We hope to discuss with the Public Health faculty further opportunities to utilize the controlled digital lending program for digital reserves. In addition, the Library is currently exploring ways to increase access to materials by students, including the insertion of digital library resources into courses,

and the adoption of Open Educational Resources, which would increase student access to no or low-cost textbooks and other course materials.

InterLibrary Loan Services Request

Interlibrary Loan data is not disaggregated by department or user type. In AY24, the University as a whole borrowed a total of 1,629 items (both physical and digital) through interlibrary loan. As mentioned above, this data is used to help determine acquisition decisions, such as subscribing to a new journal. In reviewing the most frequently requested journal and book titles, currently no titles related to Public Health were recommended to be purchased based on interlibrary loan requests.

FACILITIES for Public Health

With the Library's recent renovation, students have access to welcoming spaces designed to support individual and group work, and is more than adequate to meet the needs of students, faculty and administration. Building information is in Library Table 7: Facilities

Library Table 1:

Full-text Journal Databases by Disciplines related to Public Health

The full complement of databases supporting Public Health can be found on the Library website (https://Library.fitchburgstate.edu/research/databases). Whereas there are 13 directly applicable full-text databases, another 10 full-text databases supplement this core collection. In addition, individual titles stretching across disciplines number in the thousands. Journals are either embedded within databases or are available through individual subscriptions, accessible through Serials Solutions.

Core Full-text Journal Databases
1. Ageline 2. Biological Abstracts/BIOSIS 3. Biological Science Collection 4. Environment Complete 5. Environmental Studies and Policy Collection 6. GreenFILE 7. MEDLINE 8. PubMed 9. PAIS (Public Affairs International Service Index) 10. ProQuest Consumer Health 11. ProQuest Coronavirus Research Database 12. ProQuest Health & Medical Complete 13. PsycINFO
Supplemental Full-text Journal Databases
1. Academic Search Ultimate 2. BioMed Central 3. Environmental Studies and Policy Collection 4. GeoRef 5. JSTOR Arts & Sciences, JSTOR Life Sciences 6. PsycARTICLES 7. Psychology and Behavioral Sciences Collection 8. Science & Technology Collection 9. Science Full Text Select (H.W. Wilson) 10. Sociology Source Ultimate

Database	AY24 Usage	AY23 Usage	AY22 Usage
Ageline	4148	3259	5345
Biological Abstracts/BIOSIS	4716	3514	5590
Biological Science Collection (ProQuest)	2641	2651	4574
Environment Complete	4205	3486	5081
GreenFILE	4093	3347	4981
MEDLINE	6524	8029	11251
ProQuest Consumer Health	2624	2616	4362
ProQuest Health & Medical Complete	2689	2716	4658
PsycINFO	9757	9350	13692

Notes:

1. No usage statistics are available for free, open access, or newly acquired databases: Environmental Studies and Policy Collection, ProQuest Coronavirus Research Database, PubMed Central, PAIS
2. Database usage data disaggregated by discipline does not exist, therefore it is not possible to determine how many articles were accessed only by Public Health faculty and students. In total for the Fitchburg State community, over 124,000 articles were accessed through the Library's 203 databases in AY24.

Library Table 2:

Public Health Book Collection

		Electronic			Physical			
LC	**Subject Area**	**Published 2019-2024**	**Published 2014-2018**	**Published Prior to 2014**	**Published 2019-2024**	**Published 2014-2018**	**Published Prior to 2014**	**Total**
G	Geography (General). Atlases. Maps	435	573	854	6	20	698	2586
GA	Mathematical Geography. Cartography	35	49	57	4	6	81	232
GB	Physical Geography	116	150	274	10	22	256	828
GE	Environmental Sciences	362	397	720	6	17	395	1897
GF	Human Ecology. Anthropogeography	217	178	369	5	23	336	1128
HQ1-2044	The Family. Marriage. Women	1859	2145	4445	177	266	2634	11526
HT161-165	Garden Cities	10	6	11	0	0	15	42
HT231	Effect of City Life	0	0	0	0	0	3	3
HV	Social Pathology. Social and Public Welfare. Criminology	1811	2202	4478	117	348	3792	12748
K3566-3578	Public Health (Law)	8	1	12	0	0	0	21
K3581-3598	Environmental Law	38	48	91	0	0	2	179
K3601-3611	Medical Legislation	17	18	24	0	0	1	60
K3661-3674	Public Safety	1	0	6	0	0	0	7
QH	Natural History - Biology	777	887	2210	46	92	1866	5878

QK	Botany	226	215	535	16	14	555	1561
QL	Zoology	555	567	1400	25	52	2049	4648
QM	Human Anatomy	41	64	82	1	4	73	265
QP	Physiology	350	511	1188	42	84	1182	3357
QR	Microbiology	162	186	317	6	33	279	983
R	Medicine (General)	629	744	1419	12	36	683	3523
RA	Public Aspects of medicine	1266	1256	2546	89	127	901	6185
RB	Pathology	92	115	246	0	10	157	620
RC	Internal Medicine	1454	2494	4237	66	193	2619	11063
RG	Gynecology and Obstetrics	131	172	326	7	9	164	809
RJ	Pediatrics	246	382	829	20	45	662	2184
RM	Therapeutics. Pharmacology	192	248	354	10	26	188	1018
TD	Environmental Technology. Sanitary Engineering	346	465	807	16	11	283	1928
TP	Chemical Technology	264	445	791	4	11	92	1607
TX341-641	Nutrition	91	118	171	4	22	85	491
Totals		**11731**	**14636**	**28799**	**689**	**1471**	**20051**	**77377**
		55166			**22211**			

Library Table 3:

Film and Other Media Collection

# of Streaming Films by Subject in Kanopy Database	
Environmental Sciences	1162
Everyday Health	1210
Health & Safety	162
Health & Wellness	909
Medicine	539
Mental Health	893
Science, Nature, & Technology	1312
Sports and Fitness	617
Total (includes duplicates)	**6804**

Library Table 4:

Research Instruction

	AY22	AY23	AY24
Total Instruction Sessions Conducted:	218	254	227
Public Health Sessions Conducted:	0	1	2
Percentage:	0.0%	0.4%	0.9%
Total Embedded:	78	83	51
No. of Public Health Embedded:	0	0	0
Total In-person/Onsync classes:	140	171	176
No. of Public Health In-person/Onsync classes:	0	1	2

Note: The Library offers both discipline-specific and general information literacy instruction sessions.

Library Table 5:

Research Help

Library Research Guides

For Public Health, we have not yet created a subject research guide or course specific research guides.

Reference Statistics

	AY20	AY21	AY22	AY23	AY24
Total Interactions	**2409**	**2534**	**3469**	**3338**	**3092**
Mode of Access					
In Person	1547	838	1989	2226	2061
Chat	416	1002	634	393	393
Phone/Email	420	455	395	285	254
Video Call	42	252	144	154	111
Library FAQ Tickets		26	25	15	20
Questions by Patron					
Student	2091	2286	2829	2729	2434
Faculty	165	147	140	118	119
Extended Campus/DL	169	129	152	91	139
Public/Alumni/Other	134	69	108	96	165
Staff	29	21	57	40	28
Duration					
0-2 minutes	844	666	1205	1326	1381
3-5 minutes	644	710	941	905	625
6-15 minutes	433	551	529	383	433
16-30 minutes	265	319	287	225	250
More than 30 minutes	223	288	197	201	130

Library Table 7:

Facilities

Space	Specifications
Total Number of Seats in Library	● 596
Information Commons	● Research Help Desk ● Circulation Desk ● 49 public computer stations (now distributed on 4 floors) ● 2 multi-function printers ● KIC Scanner
Study Rooms	● 10 large (up to 8 people) containing conference table, white board, media viewing equipment, and Apple TV. ● 8 small (2 people) containing a conference table, computer, and whiteboard.
Media Production Room	● Seating up to 7 people containing a computer, Apple TV, ceiling mounted projector, DVD player, and document projector.
Quiet Space	● 2 floors (3rd and 4th)
Archives	● 28,937 items used from the institutional repository in AY24 ● 38 Special Collections totaling 322 boxes. ● 13 record groups totaling 480 boxes ● 20 digital collections containing 14,600 items ● 2,500 rare books Art collection ● Available 20 hours per week for walk ins (available by appointment as well)

Study Room Statistics	AY22	AY23	AY24
Unique Users	1,594	1,225	1,520
Total Bookings	6,079	8,241	8,789
Hours Booked	10,956	14,868	15,631