Annual Program Report
2022-2023

The report(s) should be inclusive of all levels, degrees (i.e. certificates, bachelor's and master's), modalities and locations.

Department: Earth and Geographic Sciences

Department Chair: Elizabeth Gordon

Department Assessment Committee Contact: Elizabeth Gordon

This document is to be kept in the department and an electronic file is due to the AVP of Institutional Research and Planning by June 1, 2023.

Section I: Program Assessment (please complete this section for each program in your department)

Program: Public Health Sciences

A. Program Learning Outcomes (PLOs) (Educational Objectives)

I. List of PLOs and the timeline for assessment

PLO #	PLO – Stated in assessable terms	Where are the learning outcomes for this level/program published? (please specify) Include URLs where appropriate.	Timing of assessment (annual, semester, bi-annual, etc.)	When was the last assessment of the PLO completed?
1.	discuss the history and philosophy of public health.	https://www.fitchburgstate.edu/academics/programs/public-health-practice-concentration-public-health-science-bs	Bi-annual	
2.	use appropriate methods and tools to analyze public health data and discuss the importance of evidence based approaches.		Bi-annual	

3.	explain the science of human health and disease, and discuss opportunities for promoting health.		Bi-annual	
4.	describe the socioeconomic, behavioral, biological, and environmental factors that affect human health.		Bi-annual	
5.	discuss the fundamental concepts and features of project planning, assessment, and evaluation		Bi-annual	
6.	describe the characteristics of health systems in the US as well as other countries		Bi-annual	AY22
7.	explain the basic concepts of, and responsibilities of government in, the legal, ethical, economic, and regulatory dimensions of public health policy		Bi-annual	
8.	describe fundamental scientific principles related to environmental health		Bi-annual	
9.	explain how the built environment influences human health and contributes to health disparities		Bi-annual	
10.	synthesize evidence from various sources to address		Bi-annual	

	environmental and public health issues			

II. **PLO Assessment** (Please report on the PLOs assessed and/or reviewed this year. Programs should be assessing at least one each year.)

Using the table below, list and briefly describe the **direct method(s)** used to collect information assessing whether students are learning the core sets of knowledge (K), skills (S) and attitudes (A) identified as essential.

PLO # (from above)	**Assessment description (exam, observation, national standardized exam, oral presentation with rubric, etc.)**	**When assessment was administered in student program (internship, 4th year, 1st year, etc.)**	**To which students were assessments administered (all, only a sample, etc.)**	**What is the target set for the PLO? (criteria for success)**	**Reflection on the results: How was the "loop closed"?**
4	Assignment focused on applications in Environmental Health	Mostly 3rd and 4th year students	all students in course F22	All students earning 75% or above	see below
10	Final project in Environmental Health	Mostly 3rd and 4th year students	all students in course F22	All students earning 75% or above in each of: content, appropriate sources, use of data	see below

You may use this comment box to provide any additional information, if applicable:

Assessment for the program is complicated by: 1) low (though rising) enrollments; 2) key courses taught by adjunct faculty; 3) interdisciplinary nature of the program means several courses are taught outside the department.

Summary of Findings: Briefly summarize the results of the PLO assessments reported in Section II above combined with other relevant evidence gathered and show how these are being reviewed/discussed. How are you "closing the loop"?

Reflection Prompt	Narrative Response
Other than GPA, what data/ evidence is used to determine that graduates have achieved the stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)	**PLO4:** Assignment for Environmental Health. This is a required course for our majors typically taken in year 3 or 4. The assignment is focused on the connections between environmental pollutants and human illness/disease. - The average score for the assignment was 92%. All PHS students (7/7) scored above 80%. - 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 PLO. The assignment grade included questions that were less descriptive in nature, and are not capturing the outcome specifically. **PLO10:** Final project for Environmental Health. This is a required course for our majors typically taken in year 3 or 4. - 57% (4 of 7) PHS students demonstrated sufficient understanding of the topic addressed

	- 42% (3 of 7) PHS students used relevant information appropriately, including selection of sources and proper citation - 42% (3 of 7) PHS students demonstrated proficiency in using data to support their argument. -
Who interprets the evidence? What is the process? (e.g. annually by the curriculum committee)	**PLO4:** Instructor interprets the evidence by grading the assignment. **PLO10:** Instructor interprets the evidence using a grading rubric.
What changes have been made as a result of using the data/evidence? (close the loop)	**PLO4:** The instructor will refine the assignment to more closely align with the learning outcome, making sure that the grade assign is an accurate reflection of the PLO. **PLO10 :** The instructor will scaffold the final project and provide additional opportunities for students to engage in the environmental health literature (relevant sources) throughout the semester.

B. Assessment Plan for Program/Department

I. Insert the program or department Assessment Plan (This is an independent plan from what is reported in this document).

II. Explain any changes in the assessment plan including new or revised PLOs, new assessments that the program/department plans to implement and new targets or goals set for student success.

With the recent founding of a PHS curriculum advisory group, which spans departments, the assessment plan will be examined and modified if necessary.

III. If you do not have a plan, would you like help in developing one? ___Yes

C. Program Review Action Plan or External action Letter/Report

Annual Reflection/Follow-up on Action Plan from last Program Review or external accreditation (only complete the table that is appropriate for your program

I. **Programs that fall under Program Review:**

i. Date of most recent Review: N/A (new program as of Fall 2019)
ii. Insert the Action Plan table from your last Program Review and give any progress towards completing the tasks or achieving targets set forth in the plan.

iii. If you do not have an action plan, would you like help in developing one based on your last program review and needs of the program? _____Yes

II. Programs with external Accreditation: N/A

Section II - Departmental Outcomes

A. Departmental Strategic Initiatives

Accomplished Initiatives AY22-23 **Add more rows as needed**	**Corresponding Strategic Plan Goal & Strategy** **Goal # followed by Strategy # ex: 1.3**	**Indicate (X) if a Diversity, Equity and Inclusiveness (DEI) Goal**
Integrate career preparation into advising; examine ways to ensure equitable access to high impact practices:	**2.5** *Integrate career services into departments and curriculum, and build more consistent*	X

-As part of an interdepartmental AIF grant (AY23), Reid Parsons led the effort in our department to streamline and clarify the internship process for students. This was follow-up work to developing career action plans for two of our majors the previous year (EES, GST). -The PHS career action plan was completed during this academic year. -While still a work in progress, the internship guide that was created as part of this effort will facilitate access to internships and other high impact practices for our majors. This work also provided the basis for which an APR position will be granted in the upcoming AYs to support student participation in HIPs, which will also expand access to opportunities for internships.	*career advising across campus, especially for first-year students and sophomores.*	
Expand opportunities for student research and other high impact practices, including study abroad: -In addition to the efforts noted above to improve access to HIPs, one of the goals of our action plan from our previous self study was to explore opportunities for course-based research. Reid Parsons reframed Geomorphology this AY to create a course-based research project. -Five students participated in grant-funded research projects during this academic year. -The first Study Abroad course from the department is being offered this academic year. Jane Huang will lead students to Peru at the end of May.	**1.2** *Establish a learning environment in which academic and co-curricular programs work in synergy to offer applied learning experiences that prepare students for purposeful personal and professional lives.*	
Develop pathways/Early college offerings: -Our department offered an Early College/UBMS course last summer. We plan to offer a course again summer 2024. -An articulation agreement between Fitchburg State and MWCC was created for Allied Health students to transfer directly into the PHS major.	**2.1** *Achieve a cultural shift around how we advise, mentor, and teach all students, especially traditionally underrepresented and underserved students, so that we meet them where they are.*	x

Curricular revisions -The department added new courses to the curriculum, and revised our major curricula accordingly. -Faculty from the department participated in a collaboration with Mathematics and Computer Science to create the new Data Analytics minor. Faculty from the department participated in discussions with other departments to develop a Sustainability Studies major and minor.	**1.3 and 1.4** *3.Promote greater interdisciplinary teaching and develop innovative combinations across academic departments.* *4. Leverage existing curricular strengths to develop new programs that meet demand and forge deeper connections between our curriculum and community needs*	

Planned Initiatives for AY 23-24 **Add more rows as needed**	**Associated Strategic Plan Goal & Strategy** **Goal # followed by Strategy # ex: 1.3**	**Indicate (X) if a Diversity, Equity and Inclusiveness (DEI) Goal**
Cross-walking curriculum to career action plans With career action plans completed for each of our three majors, this year's work will map each major's curriculum to the career competencies.	**2.5** *Integrate career services into departments and curriculum, and build more consistent career advising across campus, especially for first-year students and sophomores.*	x
Continued curricular innovation -The department's recently acquired drone will be incorporated into learning activities in our *Remote Sensing* course this fall. This will expand students' technology skills that can be used in the workforce. -Initiate discussions with other relevant departments, especially Biology/Chemistry, regarding the development of a field techniques course and environmental field sampling certificate	**1.2 and 1.3** *2. Establish a learning environment in which academic and co-curricular programs work in synergy to offer applied learning experiences that prepare students for purposeful personal and professional lives.* *3.Promote greater interdisciplinary teaching and develop innovative combinations across academic departments.*	

Expand marketing efforts -The department will collaborate with Marketing to increase our social media presence and other initiatives to reach perspective students, community partners, and alumni.	**5.6** *Adopt a more coordinated, collaborative approach to internal communications and external marketing, and proactively engage members of the University community as proud brand ambassadors.*	x

B. Departmental Accomplishments and Reflection:

Take this section to reflect on--

1. *22-23 Accomplishments not captured above*

   In order to address one of the difficulties in assessing the program (its interdisciplinary nature), a Public Health Curriculum Advisory group was created in AY23. The group met once in spring 2023 to discuss curricular revisions.

2. *Initiatives that you may be considering for 23-24 academic year that you did not already capture above*

   In addition to the curriculum cross-walking exercise mentioned above, faculty who serve on the PHS Curriculum Advisory group will re-evaluate the learning outcomes for the curriculum and discuss ways to scaffold skill development across courses.

3. *Any other thoughts or information that you would like to share*

Public Health Sciences Assessment Plan (2021)

Program learning outcome Students will:	**Core Courses**	**Concentration specific**
- 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 EPH2010 Epidemiology GEOG 2400 Intro to Geospatial Tech. EPH3050 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	
-describe the socioeconomic, behavioral, biological, and environmental factors that affect human health.	PSY 1100 SOC 1100 SOC 2750 Medical Sociology BIOL 2700 Medical Microbiology EPH3000 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	EPH3050 Evaluation Methods in Public health	Public Health Strategies (new, PHP)
-describe the characteristics of health systems in the US as well as other countries	EPH2000 Public Health in the United States	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 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 EPH3000 Environmental Health	GEOG2XXX Water Resources and Society (EPH)
-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	

Earth and Geographic Sciences 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	Progress made AY21	Progress made AY22	Progress made AY23
Enrollments	Enrollments, while improving, remain below target	All faculty	Begin AY21	May require small but undetermined amount of funding	Increased enrollments	Attended open houses and FFDs.	Attended open houses and FFDs. Collaboration with Nursing and Health Professions advising to recruit PHS students.	Attended open houses and FFDs. Collaboration with Nursing and Health Professions advising to recruit PHS students. Articulation agreement with MWCC.
Curriculum and assessment	New gen ed and associated assessment; Gaps in major courses; skill development; internship assessment	Geo faculty	AY21 – Overall discussion; gen ed proposals and assessment plan AY22 – add/modify major courses as needed AY22-23 – discuss internship assessment AY24 - evaluate	None	Addition of key courses to curriculum; gen ed designations for intro courses; continued assessment of skills; assessment plan for gen ed outcomes and internships	New gen ed designations for all gen ed lab courses and introductory geospatial courses	New gen ed designations for social geography courses; Applied for AIF to obtain course release for internship/HIP work	Added new courses, modified curricula of each major. Reid Parsons completed work on expanding IHIP assess and assessment.
Capstone experience	No required capstone	Geo faculty	AY21 – planning	Course release to build	Addition of capstone		Applied for AIF to obtain course release	Reid Parsons completed APR to develop learning

			AY22 – pilot of course-based capstone; identify earth science internships AY23 - evaluate	internships	experience to curriculum		for internship/HIP work	outcomes for IHIPs, develop materials for students in order to expand access. Piloted course-based research in required upper level EES course.
Strengthen community	Limited sustained opportunities for student extracurricular engagement	All faculty	AY21 – planning AY22 – at least three events AY23 – monthly events	Not yet identified	Number of planned departmental events; attendance at said events		One hike, one clean-up (with sustainability committee), three alum events (Tristan and Sam job talk; Dorian internship and jobs; Tallie and Caroline, grad school)	
Marketing	Enrollments	All faculty	1-2y: develop coherence across programs 3-5y: Departmental newsletter					Discussions about newsletter vs social media
Outreach -on campus -to local high schools -to broader community	Enrollments/department recognition	All faculty	1-2y: planning 3-5y: implementation 5-7y: develop advisory board	Small amount of funding may be requested to support outreach efforts	Increased outreach activities, ideally translating into increased enrollments			Discussions about potential advisory board members.
Participation in early college program	Increase enrollment in courses, possible recruitment	All faculty	1-2y		More early college students in courses		early college GEOG1000 Summer 22	

Transfer friendly curriculum/ Articulation agreements	Increase enrollments	Faculty develop 2yr plans; Chair to work with Heather Thomas	1-2y		Establishment of 2 yr plan; increase articulation agreements	changes to PHS major that are more transfer friendly		Developed articulation agreement with MWCC for Allied Health to PHS pathway.
Curriculum alignment -Add technology objective -GST sequencing and mapping competencies	Align curriculum with learning outcomes	Geo faculty	1-2y		Technology objective added; GST curriculum map			
Experiential learning -study abroad -capstone -field course -certificates	Expand student opportunities	Geo faculty	1-2y: planning 3-5y: implementation	Funding for 'scouting trips' to expand study abroad (or domestically); acquire relevant equipment	Increase offerings of experiential learning		Study abroad planning for AY23; discussion of GIS certificate	Study abroad offered Spring 2023 Global Health Study Abroad added to curriculum; to be offered Spring 2024 Discussions regarding field course. Piloted course-based research project for upper level course EES.
Departmental Collaborations	Increase course enrollments	All faculty	1-2y: ETech 3-5y: Bio/Chem		Expansion of programs, increased enrollments of courses		Geoinformatics; Data science discussions; Digital Media Innovation;	Collaborated on Data Analytics minor, which went through AUC

							GIS-CJ added as a data analysis option for CJ major	
Personnel	Additional faculty line in geography needed; technician support	Chair to request; all faculty assist in hiring process	Annual request	Costs associated with faculty hire	New geographer joins the department		Technician responsibilities adjusted to provide support to geospatial needs	
Equipment acquisition	Student access to equipment that better prepares them for graduate school and employment; expand opportunities for research	Chair to request; faculty identify equipment needs	1-2y, pending budgetary resources	Costs of equipment acquisition and upkeep	Acquisition of relevant equipment		GPS units for study abroad; equipment for soil sampling	Purchased equipment for field work; Accessories for the drone. Began operating the drone.