The University Senate of Michigan Technological University
Proposal 21-25

"Minor in Population Health"

Basic Program Information

Primary Contact: Dr. Kelly Kamm
Program/Degree type: Minor
Program Title: Minor in Population Health
Planned Implementation Date: Fall 2025
Program location/modality: on-campus
Target student population: current students
Restrictions: None

General description and characteristics of the program

The Department of Kinesiology and Integrative Physiology is proposing a minor program in Population Health for use in the Essential Education program. This minor is designed to allow students to:

- Apply a population-based, cross-sector approach to identify and address complex health problems
- Assess the biologic, social, behavioral, cultural, political, and environmental factors that promote or inhibit health of populations
- Apply principles of research and public engagement to the design for evaluation of solutions.
- Foster an awareness for drivers of health inequities within and between population groups.

A minor in population health introduces students to the health inequities within and between populations, principles and strategies to engage stakeholders and improve health through scalable solutions at the societal level. Students can integrate population health perspectives into many careers such as public health, allied and professional health fields, graduate programs in biology and physiology, as well as law, business, policy, and engineering.

This minor is 18-19 credits, and designed to meet the requirements of the Essential Education program, and is being submitted with approval from the Essential Ed Implementation Team.

This new minor will be administered by the Department of Kinesiology and Integrative Physiology and will be advised by an individual or individuals appointed by the Department of Kinesiology and Integrative Physiology. Future changes to the minor requirements will be reviewed and approved by the Essential Education Steering Committee.

Rationale

This minor theme was selected as a priority area by campus working groups and aligns Michigan Tech's mission, vision, and strategic plan to create solutions for current and future **health** challenges and ***innovate to improve the quality of life and to promote mutual respect and equity for all people within the state, the nation, and the global communit***y.

Human health is impacted by our individual biology as well as the natural, built, and social environments in which we live, work, and play. Healthy populations are critical for sustainable economic growth. It is important for all sectors to recognize the role they play in creating, promoting, and maintaining opportunities for all individuals to be healthy. The Population Health minor is relevant for students across all majors to integrate community and public health perspectives into the built environment, the natural environment, advocacy and policy, innovation and entrepreneurship.

Related programs: within MTU and at other institutions

The proposed minor in Population Health is a broader adaptation of the current minor in Public Health , which is administered by the Department of Kinesiology and Integrative Physiology and will continue to exist in parallel, and was developed using published guidelines for establishing undergraduate public health curricula at universities without schools of public health (1-3). Similar undergraduate minors in public or population health are located at Wayne State University, Michigan State University, and Central Michigan University.
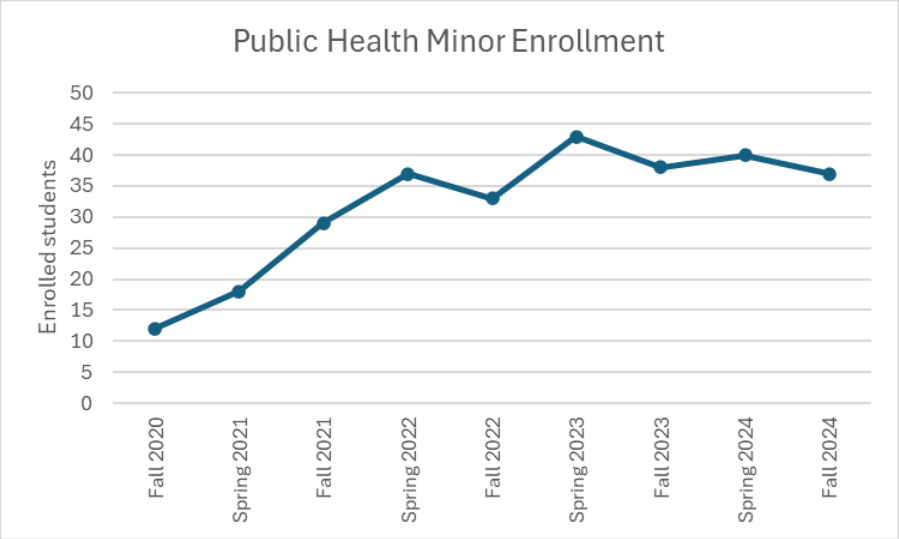
1, Riegleman RK & Abertine S. (2008) Recommendations for Undergraduate Public Health Education. *Association of American Colleges and Universities.*

2. Riegleman RK, Abertine S, Persily NA. (2007) The Educated Citizen and Public Health: A Consensus Report on Public Health and Undergraduate Education. Council of Colleges of Arts & Sciences.

3. Riegleman RK, Abertine S, Persily N, Kaelin MW, Cashman S. (2008) Curriculum Guide for Undergraduate Public Health Education. Washington DC: Association for Prevention Teaching and Research.

Projected Enrollment

Since its approval by the MTU Senate in February 2020, the public health minor has consistently attracted students from across the university. To date, students from 20 different majors across three colleges have either completed or are currently enrolled in the minor.

Public Health Minor Enrollment

We anticipate enrollment in the Population Health minor to at least double within the first three years due to past trends and the growing recognition of the minor's relevance to various fields of study. The increasing global emphasis on addressing complex health challenges and the integral role of health and well-being in the workforce underscore the importance of integrating a population health perspective across diverse sectors. This awareness is expected to drive continued growth as students recognize the value of this minor in contributing to solutions within their respective fields.

Specialized Accreditation Requirements

None required.

Professional Licensure Requirements

None required.

Curriculum Details

Learning Goals

Aligned Essential Ed Goals	Program Learning Outcomes
Contribute/Transform	Be able to understand how the biologic, economic, social, cultural, policy, and/or environmental factors intersect to create innovative solutions to promote or inhibit drivers of health in populations.

Assessment Plan

This minor will be assessed through the ePortfolio submissions. Students will be specifically asked to reflect on the learning goal(s) for the minor.

Curriculum Design

Total Credits: 18-19 credits (Curated sublists for course recommendations based on student's majors will be provided to advisors as a support tool to facilitate students selecting courses related to their individual career goals.)

Course	Credits	Semesters offered	Pre-reqs and restrictions
Public Health Approach [SHAPE Courses 1]: 3 cr			
KIP2600: Introduction to Public Health (Required for all students)	3	Fall	None
Health Communication [Communication Intensive]: 3 cr			
AF3001: Leading People and Effective Communication	3	Fall	UN1015, UN1025
HU2830: Public Speaking & Multimedia 3	3	Fall, Spring, Summer	None
HU2840: Interpersonal Communication and Technology	3	On demand	None
HU3105: Writing about Numbers	3	Spring	UN1015, UN1025; not freshman
HU3120: Technical and Professional Communication	3	Fall, Spring, Summer	UN1015, UN1025 or language 3000+; not freshman or sophomore
HU3693: Science Writing	3	Spring, even years	UN1015, UN1025 or language 3000+;; not freshman
HU3694: Grant Writing	3	Fall, even years	UN1015, UN1025 or language 3000+; not freshman
HU3825: Environmental Communication	3	Fall	UN1015, UN1025 or language 3000+
HU3832: Virtual Encounters	3	On demand	UN1015, UN1025 or language 3000+
HU4625: Risk Communication	3	On demand	UN1015, UN1025 or language 3000+; not freshman or sophomore

Course	Credits	Semesters offered	Pre-reqs and restrictions
SS3520: U.S. Environmental History	3	Fall	UN1015, UN1025 or language 3000+; not freshman
SS4040: Civic Communications	3	Spring	SS2001, UN1015, UN1025 or language 3000+
Foundations of Health Equity [Intercultural Competency]: 3 cr			
BL3970: Current Health Issues	3	Spring, Summer	UN1015, UN1025 or language 3000+; not freshman
EC4710: Labor/Human Resource Economics	3	Spring, even years	EC2001, UN1015, UN1025 or language 3000+
HU3261: Topics communicating across cultures	3	On demand	UN1015, UN1025 or language 3000+
HU3400: Topics in Diversity Studies	3	Spring	UN1015, UN1025 or language 3000+
HU3800: Media and Society	3	Spring	UN1015, UN1025 or language 3000+
HU3830: Creativity, Culture, & Change	3	On demand	UN1015, UN1025 or language 3000+
HU3850: Cultural Studies	3	On demand	UN1015, UN1025 or language 3000+
HU3855: Power, Activism, and Technology	3	Fall	UN1015, UN1025 or language 3000+
MGT3000: Organizational Behavior	3	Fall, Spring	Not freshman
MGT4100: International Management	3	Fall	Not freshman or sophomore
PSY3340: Psychology of Race	3	Spring	PSY2000, UN1015, UN1025 or language 3000+
PSY3720: Social Psychology	3	Fall, Summer	PSY2000, UN1015, UN1025 or language 3000+
PSY4340: Culture and Cognition	3	Fall	PSY2000, UN1015, UN1025 or language 3000+
SS3105: Native American and Indigenous Communities	3	On demand	UN1015, UN1025 or language 3000+; not freshman
SS3612: International Relations	3	Spring, even yrs	UN1015, UN1025 or

Course	Credits	Semesters offered	Pre-reqs and restrictions
			language 3000+; not freshman
SS3640: Selected Topics in Cyber-Law	3	Spring, odd yrs	UN1015, UN1025 or language 3000+; not freshman
SS3660: Constitutional Law	3	Fall, odd yrs	UN1015, UN1025 or language 3000+; not freshman
SS3661: Civil Rights & Civil Liberties	3	Spring, even yrs	UN1015, UN1025 or language 3000+; not freshman
SS3665: Crime, Incarceration, and Policy	3	Fall, even yrs	UN1015, UN1025 or language 3000+
SS3750: Social Inequality	3	Fall, Spring odd yrs (both)	UN1015, UN1025 or language 3000+; not freshman
SS3805: Environmental Justice	3	Spring, odd yrs	UN1015, UN1025 or language 3000+
SS3961: Preparing for Cross-Cultural Immersion Experiences	3	Spring	UN1015, UN1025 or language 3000+
SS4450: Sustainable Tourism and Planning	3	Fall, even yrs	SS2450 or SS210 or SS2400 or SS2700, UN1015, UN1025 or language 3000+
SS4710: Geographies of Migrant and National Communities	3	Spring, odd yrs	UN1015, UN1025 or language 3000+
Drivers of Population Health [SHAPE Courses 2]: 3 cr			
BL3090: Spirituality in Healthcare	3	Fall	
BUS1100: Introduction to Business	3	Spring	
EC3300: Industrial Organization	3	Fall	EC2001, UN1015, UN1025 or language 3000+
EC4500: Public Sector Economics	3	On demand	EC2001 , UN1015, UN1025 or language 3000+
EC4620: Energy Economics	3	On demand	EC2001, UN1015, UN1025 or language 3000+

Course	Credits	Semesters offered	Pre-reqs and restrictions
EC4650: Environmental Economics	3	Spring, odd yrs	EC2001, UN1015, UN1025 or language 3000+
ENG2060: Facilitating Group Learning	1	Fall, Spring	ENG1102 or CH1160
ENG4060: Leadership in Group Environments	1	On demand	UN1015, UN1025; not freshman
ENT2962: Communication Contexts	1	Fall, Spring, Summer	UN1025; not freshman
HF3850: Human Factors	3	Fall	PSY2000 or HF2000, UN1015, UN1025 or language 3000+; not freshman
HU2701: Logic and Critical Thinking	3	On demand	
HU2702: Ethical Theory and Moral Problems	3	On demand	
MGT2000: Team Dynamics	3	Fall, Spring	Not freshman
MGT3100: Leadership Development	3	Fall	Not freshman
MGT3800: Entrepreneurship	3	Fall, Spring	Not freshman
MKT3000: Principles of Marketing	3	Fall, Spring, Summer	
MKT3200: Consumer Behavior	3	Fall	MKT3000
PSY2110: Educational Psychology	3	Fall, even yrs	
PSY2400: Health Psychology	3	Spring	PSY2000
PSY2600: Psychology of Death and Dying	3	Fall, even yrs	PSY2000
PSY2800: Critical Thinking	3	Spring	PSY2000
PSY2900: An Introduction to Restorative Practices	3	On demand	
PSY3200: Motivation and Emotion	3	On demand	PSY2000; not freshman

Course	Credits	Semesters offered	Pre-reqs and restrictions
PSY3700: Industrial/Organizational Psychology	3	Fall, odd yrs	PSY2000 or HF2000; not freshman
PSY3800: Environmental Psychology	3	Spring, even yrs	PSY2000 or HF2000, UN1015, UN1025 or language 3000+; not freshman
PSY3880: Psychology of Social Media	3	On demand	PSY2000, UN1015, UN1025 or language 3000+
PSY4750: Judgment and Decision Making	3	Spring	PSY2000 or HF2000; not freshman
SS2001: Intro to Social Science Research	3	Spring	
SS2210: Community Development and Planning	3	Spring, odd yrs	
SS2400: Introduction to Human Geography	3	Fall	
SS2620: Introduction to Public Policy	3	Fall	
SS2750: Racial Inequality	3	On demand	
SS3315: Population, Health and Environment	3	Fall, odd yrs	UN1015, UN1025 or language 3000+; not freshman
SS3621: Public Policy & Management	3	On demand	UN1015, UN1025 or language 3000+
SS3625: Policy Analysis	3	Spring, odd years	SS2620, SS2001, PSY 2720 or MA2720 or SS2720; not freshman
SS3630: Environmental Policy & Politics	3	Spring	UN1015, UN1025 or language 3000+; not freshman
SS3755: Sustainability and the Private Sector	3	Spring	UN1015, UN1025 or language 3000+
SS3815: Energy and Society	3	Summer, odd yrs	UN1015, UN1025 or language 3000+
SS4009: Survey Methods	3	Spring, even yrs	Not freshman or sophomore

Course	Credits	Semesters offered	Pre-reqs and restrictions
SS4120: Sustainable Development	3	Fall	UN1015, UN1025 or language 3000+
SS4200: Environmental Anthropology	3	Fall	SS2100, UN1015, UN1025 or language 3000+; not freshman
SS4400: Environmental Sociology	3	On demand	SS2700 or SS2400; not freshman
Health Issues Across Sectors [Unrestricted Courses]: 3 cr			
KIP4740: Epidemiology[a]	**3**	**Spring**	
ART2195: Art & Flora Visual Taxonomies of Terrestrial & Aquatic Ecosystems	3	Fall, even yrs	Not senior
BE2110: Statistical Methods for Biomedical Engineering	3	Spring	MA1135 or MA1160 or MA1161 or MA1121
BL2940: Human Nutrition	3	Spring, Summer	
BL3230: Medical Bacteriology	5	Spring	BL3210
BL3310: Environmental Microbiology	3	Spring	BL1200 or BL1400 or BL1020 or BL1040 or BL3080; not freshman
BL3800: Medical Mycology, Virology & Parasitology	2	Spring	BL2410; BL3210; BL2020; not freshman; MLS major
BL4070: Environmental toxicology	3	Spring	BL1020 or BL1200/BL1210 or BL1400/BL1410, CH1150, CH1160; not freshman or sophomore
CEE3503: Environmental engineering	3	Spring	MA2160, CH112 or CH1150/CH1151
CEE4993: Engineering with developing countries	3	Fall	BE3350 or CM3110 or ENG3200 or MEEM3201 or CEE3200
CS3000: Ethical and Social Aspects of Computing	3	Fall, Spring	CS3141
CS3425: Introduction to Database Systems	3	Fall, Spring	CS2311or MA 3210; CS2321
CS4001: National Cybersecurity Policy & Law	3	Fall	Must be senior

Course	Credits	Semesters offered	Pre-reqs and restrictions
CS4760: User Interface Design and Implementation	3	Spring	CS3141
EC3400: Economic Decision Analysis	3	Fall, Spring, Summer	UN1015; UN 1025; not freshman or sophomore; Major restrictions
EC4200: Econometrics	3	Fall	EC2001 or EC3002 or EC3003; BUS2100 or MA2710 or MA2720 or MA3710; MA1135 or MA1160 or MA1161 or MA1121
EC4640: Natural Resource Economics	3	Fall	EC2001 or EC3002 or FW4080; UN1015; UN1025
FW3110: Natural resource Policy	3	Spring, Summer	
FW3112: Human Dimensions of Conservation	3	Spring	FW1050; not freshman
FW3510: Outdoor Recreation & Tourism	3	Spring	
GE2010: Introduction to Geographic Information Systems	3	Fall	MA1160 or MA1161 or MA1121
GE2100:Environmental Geology	3	Spring	
GE4150: Natural Hazards	3	Fall	GE2000 or GE2100; Not freshman or sophomore
GE4220: Mining Systems and the Environment	3	Fall	CH1150; not freshman, sophomore
HF4420: Human Factors in Healthcare	3	Spring, even yrs	
KIP2200:Health Promotion	2	Fall, even years	KIP1500
KIP3410: Facilities & Events Management	3	Fall, odd yrs	Not freshman
KIP3700: Lifetime Fitness	3	Summer	
MA2710: Introduction to Statistical Analysis	3	Spring	MA1160 or MA1161 or MA1135 or MA1121; restricted by major
MA3715: Biostatistics	3	Spring	MA1135 or MA1160 or MA1161 or MA1121 or MA2160 or MA3160

Course	Credits	Semesters offered	Pre-reqs and restrictions
NUR4060: Community Nursing	6	Spring	NUR4080; NUR4040
PSY2200: Behavior modification	3	Fall, odd yrs	PSY2000
PSY2720: Statistics for the Behavioral Sciences	4	Spring	MA1031 or MA1032 or MA1120 or MA1160 or MA1161 or MA1135 or MA1121; restricted by major
SAT4424: Population health management & monitoring	3	Spring	SAT4422 or BL2010 or BL3080 or EH1500 or KIP1500 or SAT 5121; not freshman or sophomore
SS2050: Fundamentals of Geographic Information Systems & Technologies	3	Fall, Spring, even yrs (both)	
SS2300: Environment & Society	3	Fall, Spring	
SS2720: Statistics for Social Science	4	Fall, Spring	MA1020 or MA1030 or MA1120 or MA1031 or MA1032; enrolled in CFRES or CSA or CB
Innovating Health Solutions [Essential Ed Experience]: 3 cr			
HON4070: Leadership Practicum	variable	Fall, Spring, Summer	MGT3100 or AF3001; permission of dept; not freshman or sophomore
SS3960: Cultural Immersion	3	On demand	UN1015, UN1025 or language 3000+
SS4050: Advanced GIS Methods	3	Fall, odd yrs	SS2050 or FW3540 or GE3250 or GE4540 or SU3540 or SU4010 or SU4012, UN1015, UN1025 or language 3000+; not freshman
SS4700: Communities and Research	3	Fall	UN1015, UN1025 or language 3000+; not freshman or sophomore
OR ePortfolio Submission[d]: 1 cr			
UN3023 Advanced Portfolio for	1 cr	all	None

Course	Credits	Semesters offered	Pre-reqs and restrictions
Essential Ed			
AND 1 of the following: 3 cr			
BL 3090: Spirituality in Healthcare	3	Fall	
EC3300: Industrial Organization	3	Fall	EC2001, UN1015, UN1025 or language 3000+
EC4500: Public Sector Economics	3	On demand	EC2001 , UN1015, UN1025 or language 3000+
EC4620: Energy Economics	3	On demand	EC2001, UN1015, UN1025 or language 3000+
EC4650: Environmental Economics	3	Spring, odd yrs	EC2001, UN1015, UN1025 or language 3000+
ENG4060: Leadership in Group Environments	1	On demand	UN1015, UN1025; not freshman
HF3850: Human Factors	3	Fall	PSY2000 or HF2000, UN1015, UN1025 or language 3000+; not freshman
MGT3100: Leadership Development	3	Fall	Not freshman
MGT3800: Entrepreneurship	3	Fall, Spring	Not freshman
MKT3000: Principles of Marketing	3	Fall, Spring, Summer	
MKT3200: Consumer Behavior	3	Fall	MKT3000
PSY3200: Motivation and Emotion	3	On demand	PSY2000; not freshman
PSY3700: Industrial/Organizational Psychology	3	Fall, odd yrs	PSY2000 or HF2000; not freshman
PSY3800: Environmental Psychology	3	Spring, even yrs	PSY2000 or HF2000, UN1015, UN1025 or language 3000+; not freshman
PSY3880: Psychology of Social Media	3	On demand	PSY2000, UN1015, UN1025 or language 3000+
PSY4750: Judgment and Decision Making	3	Spring	PSY2000 or HF2000; not freshman
SS3315: Population, Health and Environment	3	Fall, odd yrs	UN1015, UN1025 or language 3000+; not

Course	Credits	Semesters offered	Pre-reqs and restrictions
			freshman
SS3110: Food Systems and Sustainability	3	Fall	UN1015, UN1025 or language 3000+
SS3621: Public Policy & Management	3	On demand	UN1015, UN1025 or language 3000+
SS3625: Policy Analysis	3	Spring, odd years	SS2620, SS2001, PSY 2720 or MA2720 or SS2720; not freshman
SS3630: Environmental Policy & Politics	3	Spring	UN1015, UN1025 or language 3000+; not freshman
SS3755: Sustainability and the Private Sector	3	Spring	UN1015, UN1025 or language 3000+
SS3815: Energy and Society	3	Summer, odd yrs	UN1015, UN1025 or language 3000+
SS4009: Survey Methods	3	Spring, even yrs	Not freshman or sophomore
SS4120: Sustainable Development	3	Fall	UN1015, UN1025 or language 3000+
SS4200: Environmental Anthropology	3	Fall	SS2100, UN1015, UN1025 or language 3000+; not freshman
SS4400: Environmental Sociology	3	On demand	SS2700 or SS2400; not freshman

[a]Strongly recommended

[b]Internships may be in a variety of departments but the primary focus must be health. Questions about whether an internship meets this requirement for a health focus should be directed to the minor advisors.

[c]Capstone projects may be in a variety of departments but the primary focus must be health. Questions about whether a project meets this requirement for a health focus should be directed to the minor advisors.

[d]Students selecting an ePortfolio submission and upper division SHAPE course instead of an experience course may have 19 credits.

New Course Descriptions

We are proposing to create additional experiential courses related specifically to population health, subject to capacity to undertake the course development. We also will be working with

the Center for Mental Health & Well-being to determine the feasibility of creating a wrap-around course for students that are trained in peer health mentoring.

Model Schedule

The model schedule below shows an idealized sequence where the minor courses are completed in years 2 and 3, which is a recommended practice.

Semester	Year 1	Year 2	Year 3	Year 4
Fall		**Health Communicating** [Communication Intensive]	**Foundations of Health Equity** [Intercultural Competency]	
		Public Health Approach [SHAPE Course 1]	**Drivers of Population Health** [SHAPE Course 2]	
Spring		**Health Issues Across Sectors** [Unrestricted minor course]	**Innovating Health Solutions** [Upper-level SHAPE or Experience list]	
			ePortfolio submission[d]	
Totals		9 credits	9/10 credits	

[d]Required if completing upper level SHAPE course from the 'Creating Solutions' list

Faculty Qualifications

Courses will be taught by faculty determined to be qualified by their respective home units. Faculty qualifications will be available upon request.

Resources Needed

Library and other learning resources needed

No new library resources are needed to support this minor.

Faculty resources are adequate to start this minor. However, additional faculty support may be needed for course design and modification. For example:

- Health-focused experience courses are extremely limited. Resources are needed for faculty to develop population health-related capstone, senior design, and/or other experience courses.
- Students and our community would benefit from experience courses that involve community organizations in a meaningful way. This requires significant time and relational investment from faculty or a staff position to build and maintain mutually beneficial partnerships.

- Courses in this curriculum broadly address foundational skills important to population health but may not 'close the loop' and include content that applies these foundational skills to population health. Support is needed to facilitate collaborations to identify how a population health perspective can be introduced or integrated in existing courses.
- As demand for this minor grows, it will be necessary to address the limited faculty expertise to teach public health. KIP2600 is currently the only foundational public health course offered at MTU. The enrollment cap was recently increased due to demand but if growth continues as expected, additional faculty support will be needed.

Suitability of existing space, facilities, and equipment

Current spaces and facilities are sufficient.

Program Costs

Proposed program costs may be needed for faculty and staff support as detailed above.