**Environmental Health Option, Microbiology Last revised 10/22/19**

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**Freshman Year Credits**

CHMY 141 – College Chemistry I (F) 4

WRIT101W- College Writing I (or test out of this requirement) 3

M151Q - Pre-calculus (F, S, Su)

Or M161Q - Survey of Calculus ((F, S, Su)

Or M171Q - Calculus I (F, S, Su) 4

CORE or Elective 4-5

BIOB 160- Principals of Living Systems (F, S)

or BIOB 260- Cellular and Molecular Biology (F, S) 4

CHMY 143- College Chemistry II (F, S, SU) 4

GPHY 284- Intro to GIS (F, S) 3

COMX111US – Intro to Public Speaking

Or US101US – University Seminar 3

CORE or Elective 2-3

**Year Total: 30-32**

**Sophomore Year Credits**

BIOM210RN-Principals of Environmental Health Science (F) 3

CHMY 211- Organic Chemistry (F, S)

Or CHMY 321- Organic Chemistry I (F, Su) 4-5

PHSX 205 – College Physics I (F, S, Su) 4

NRSM 240- Natural Resource Ecology (F) 3

or NRSM 101- Natural Resource Conservation (F)

or BIOE 370- Ecology (F, S)

or BIOM 415- Microbial Diversity, Ecology, Evolution (S, even years)

KIN 221- Health Anatomy and Physiology (F, Su)

or BIOH 211 Anatomy & Physiology II (F, S)

or BIOH 185 Integrated Physiology (F)

or ANSC 265/266 Anatomy & Physiology of Domestic Animals (S) 3-4

HDFS 271- Statistical Measures of Well Being(S)

or BIOB 318- Biometry (S)

or STAT 216- Intro to Stats (F, S, Su) 3

*One of:*

CULA 105 – Food Safety & Sanitation (F) 2-3

or BIOM 250 Microbiology for Health Sciences: Infectious Diseases (F, S)

or BIOM460 Infectious Diseases Ecology & Spillover (F, in senior year after BIOM360)

CORE and/or Electives 5-6

**Year Total: 30-32**

**Junior Year Credits**

BIOM 360- General Microbiology (F, S) 5

MBEH 498- Environmental Health Internship 3

CORE and/or Electives 2

EENV 387- Environmental Law and Policy (S) 3

CORE and/or Electives 8

**Year Total: 30**

**Senior Year Credits**

BIOM 494 Seminar (Environmental Health Management/Capstone) 1CHTH 440 Principals of Epidemiology (F) 3

ENSC 407- Environmental Risk Assessment (F, alternate years) 3

CORE and/or Electives 9

BIOM 494 Seminar (Capstone)

Or MBEH 490R Research (Capstone) 1-3

BIOM 425- Toxicology (S) 3

CORE and/or Electives 9-11

Year Total: 30

**Total Program Credits: 120**

**Electives (12 cr. or more from this list. A minimum of 120 credits is required for graduation, with ≥42 course credits at 300 level or above)**

**Recommended electives**

CULA 105 – Food Safety & Sanitation (F) 2-3

and/or BIOM 250 Microbiology for Health Sciences: Infectious Diseases (F, S)

and/or BIOM 460 Infectious Diseases Ecology and Spillover (F) (*whichever courses were not taken above*)

MBEH 2XX (in planning stage) HAZWOPER (Hazardous Waste Operations & Emergency Response) 2

BIOM 430 Applied and Environmental Microbiology 4

LS 191  Introduction to Global Health (F) 3

ENSC 272 Water Resources (F) 3

ENSC 245 Soils (F) 3

ARCH 231 Issues in Sustainability 3

WRIT 221 Intermediate Tech Writing (F, S)

or WRIT 326 Advanced Writing (F) 3

CHTH 210 Foundations in Community Health 3

**Electives: Other**

MBEH 291 Special Topics in Environmental Health 1-4

MBEH 475 Field Project in Environmental Health 1-4

MBEH 490R Undergraduate Research 1-6

MBEH 492 Independent Study 1-3

**Electives: Other (cont’d.)**

MBEH 4XX Water and Wastewater Microbiology (planned) 3

MBEH 4XX Occupational Health and Safety (planned) 3

AGSC 465R Health, Agriculture and Poverty (F,S) 4

BCH 380 Biochemistry 5

BIOE 375 Ecological Responses to Climate Change (S) 3

BIOH201 Human Anatomy & Physiology I (F) 5

BIOH 303 Global Diseases and Health Disparities (S) 3

BIOM 400 Medical Microbiology (S) 3

BIOB 410 Immunology 3

BIOM 405 Host Associated Microbiomes 3

BIOM 410 Microbial Genetics 3

BIOM 435 Virology 3

BIOM 450 Microbial Physiology 3 BIOM 452 Soil and Environmental Microbiology (S) 3

BIOO 262 IN Intro to Entomology 3

**BMGT 335 Management & Organization (S) 3**

CHEM323 Organic Chemistry II 4

CHTH 317 Health Behavior Theories 3

ENSC 353 Environmental Biogeochemistry 3ENSC 444 Watershed Hydrology (F) 3

ENSC 460 Soil Remediation (S) 3

ENSC 461 Restoration Ecology 3

ERTH 101N Earth System Sciences (no longer required by Accreditation) 4

GPHY 357 GPS Fund/App Mapping (F) 3

GPHY 384 Advanced GIS and Spatial Analysis (F/S) 3

GPHY 402 Water & Society 3

M161or M171 Calculus counts as elective if M151 taken at MSU 3NASX 310 Native Cultures in North America or NASX 450 History of American Indians 3NASX 415 Native Food Systems 3NASX 476 American Indian Policy and Law 3NRSM 430 Natural Resource Law 3 NUTR 221 Basic Human Nutrition (F, S, Su) 3

NUTR 226 Food Fundamentals (S) 3

NUTR 227 Food Fundamentals Lab (F,S) 2

NUTR 322 Food Service System Management (F) 3

PHSX 207 College Physics II 4

SFBS146 Intro to Sustainable Foods & Bioenergy Systems (S) 3

SFBS 451R Sustainable Food Systems (S) 3

STAT 217Q Intermediate Statistical Concepts 3

STAT 411 Methods for Data Analysis I 3

STAT 412 Methods for Data Analysis II 3

Alternate courses possible with advisor approval.

**Suggested Elective Groups**

Communicable Disease Management

BIOM 250 Microbiology for Health Sciences: Infectious Diseases (F, S) (*if not taken above*) 3

BIOM 460 Infectious Diseases Ecology and Spillover (F) (*if not taken above*) 3

BIOB 410 Immunology 3

BIOM 400 Medical Microbiology (S) 3

BIOM 435 Virology 3

Pre-medicine

BCH 380 Biochemistry 5

PHSX 207 College Physics II 4

CHEM323 Organic Chemistry II 4

Water & Wastewater Management (4 of these courses)

ENSC 245 Soils (F) 3

ENSC 272 Water Resources (F) 3

BIOM 452 Soil & Environmental Microbiology 3

ENSC 353 Environmental Biogeochemistry 3

ENSC 444 Watershed Hydrology (F) 3

GPHY 384 Advanced GIS and Spatial Analysis (F/S) 3

MBEH 4XX Water and Wastewater Microbiology (planned) 3

Plus: MBEH498 Required internship focused on water and/or wastewater 3

NOTE: Students can earn the Water Resources Minor with just an additional 3 courses. See <http://www.montana.edu/water-resources-minor/>.

Food Safety & Management (12 credits from the following)

CULA 105 – Food Safety & Sanitation (F) 2-3

or BIOM 250 Microbiology for Health Sciences: Infectious Diseases (F, S) (*if not taken above)*

NUTR 221 Basic Human Nutrition (F, S, Su) 3

NUTR 226 Food Fundamentals (S) 3

NUTR 227 Food Fundamentals Lab (F,S) 2

NUTR 322 Food Service System Management (F) 3

CHTH 317 Health Behavior Theories 3

NASX 415 Native Food Systems 3

Occupational Health and Safety

MBEH 4XX Occupational Health and Safety (planned) 3

MBEH 3XX HAZWOPER (Hazardous Waste Operations & Emergency Response) (TBD) 2

**BMGT 335 Management and Organization (F, S, Su) 3**

CHTH 317 Health Behavior Theories 3

Epidemiology

STAT 217Q Intermediate Statistical Concepts 3

STAT 411 Methods for Data Analysis I 3

STAT 412 Methods for Data Analysis II 3

Toxicology

BIOB 410 Immunology 3

BCH 380 Biochemistry 5

BIOH 201 Human Anatomy & Physiology I (F) 5

Global Environmental Health (12 credits from this list):

LS 191 Introduction to Global Health (F) 3

BIOH 303 Global Diseases and Health Disparities (S) 3

AGSC 465R Health, Agriculture and Poverty (F,S) 4

GPHY 402 Water & Society 3

Language class 3

NOTE: Students can earn the Global Health minor with just an additional 9 credits. See <http://www.montana.edu/liberalstudies/global-health.html>.

Environmental Health in Native American Communities

NASX 310 Native Cultures in North America or NASX 450 History of American Indians 3 NASX 415 Native Food Systems 3NASX 476 American Indian Policy and Law 3

AGSC 465R Health, Agriculture and Poverty (F,S) 4

Environmental Health in Hispanic Communities

SPNS 250 Spanish for Healthcare Professionals 3

SPNS 350 US Latino Cultures 3

**SPNS 496 Service/Experiential Learning 1-3**

AGSC 465R Health, Agriculture and Poverty (F,S) 4