

Curriculum Mapping

Life Science (2019-2020)

- **Definition:** A curriculum maps is graphical illustration of the relationship between a concentration's requirements/courses over the degree and its Student Learning Outcomes.
(an at-a-glance interpretation of curriculum scaffolding and coherence)
- **IMPORTANT NOTE:** Curriculum maps are created FIRST, as they provide the **what** and **why** for a concentration's curricula and sequence of courses. On the other hand, advising maps come SECOND and are used to help guide students through the **how** of registering and sequencing courses for completion of the degree in 4 years.

INSTRUCTIONS: collaboratively with your concentration members (face-to-face or in the cloud), please reflect on what courses achieve your concentration's different Learning Outcomes. Then assign an **I, R, or M** to indicate whether that outcome is **Introduced**, **Reinforced** or **Mastered** in that particular course. *(Note that typically each course addresses only a select few (2-3) of your concentration's LOs.)*

KEY: **I**=Introduced; **R**=Reinforced with opportunities for practices; **M**=Mastered at the senior or exit level; N/A=Not Applicable

Concentration Learning Outcome (CLO) Definitions

CLO1: To communicate biological content and research effectively using various media

CLO2: To integrate math, physical sciences and/or technology to answer biological questions using the scientific method to formulate testable scientific hypotheses and obtain data to test those hypotheses

CLO3: To demonstrate proficiency of lab and field techniques in their area of specialization using biological tools and content knowledge to perform basic laboratory skills pertaining to assessments, laboratory methods, sound experimental and analytical practices, data acquisition and reporting

CLO4: To demonstrate the ability to solve biological problems using effective interpretation and analysis of relationships among living things from the molecular to ecosystem level applying basic concepts grounded in the foundational theories from the life sciences.

Course	CL01:	CL02	CL03	CL04
NSCI 198B Transdisciplinary Intro to Laboratory Methods	I	I	I	N/A
NSCI 298B Transdisciplinary Intro to Research Methods	R	R	R	N/A
BIOL 171/ 171L Intro to Bio I & Lab	I	I	I	I
BIOL 172/ 172L Intro to Bio II & Lab	I	I	I	I
CHEM 161/ 161 L General Chemistry I & Lab	N/A	I	N/A	I
CHEM 162/ 162 L General Chemistry II & Lab	N/A	I	N/A	I
MATH 241 Calculus I	N/A	R	N/A	N/A
MATH 242 Calculus II	N/A	R	N/A	N/A
Physics 151 /151L College Physics I & Lab	N/A	I	N/A	N/A
Physics 152 /152L College Physics I & Lab	N/A	I	N/A	N/A
ICS 101 Digital Tools for the Information World	N/A	I	N/A	N/A
ICS 111 Introduction to Computer Science	N/A	I	N/A	N/A
HLTH 204 Intro to NH & Indigenous Health & Healing	R	N/A	R	R
HLTH 205 Hawaiian Ways of Healing	R	N/A	R	R
NSCI 211 Interdisciplinary Indigenous Sciences and Health	R	N/A	R	R
BIOL 265/265L Ecology and Evolution and Lab	R	R	R	R

Course	CL01:	CL02	CL03	CL04
BIOL 275/275L Cell and Molecular Biology and Lab	R	R	R	R
CHEM 272/272L Organic Chemistry I and Lab	N/A	R	N/A	R
CHEM 273/273L Organic Chemistry II and Lab	N/A	R	N/A	R
BIOL 310 Statistics for Biologists	N/A	R	R	N/A
MATH 304 Mathematical Modeling	N/A	R, M	R	R, M
BIOL 375/375L Genetics and Lab	R	M	M	M
BIOL 365 Research Methods in Biology	R, M	R, M	R, M	R
BIOL 390 Writing and Communicating for Life Sciences (WI)	M	M	M	M
BIOL 405 Ethics for Biology (ETH)	R	N/A	N/A	M
BIOC 441/441L Biochemistry I and Lab	R	R, M	M	M
NSCI 411 Interdisciplinary Seminar	M	M	M	M
BIOL 3XX Advanced Human Anatomy & Physiology	R, M	N/A	R, M	R, M
BIOL 301 Marine Ecology	R	R, M	R	R
BIOL 360 Island Ecosystems	R	R, M	N/A	R
BIOL 490 Mathematical Biology Seminar	M	M	R, M	N/A
BIOL 4XX Neurobiology	R	R	R	M

Course	CL01:	CL02	CL03	CL04
BIOL 4XX Immunology	R	R	R	M
BIOL 475 Animal Remains	R	R	R	R
MICR 351/351L Biology of Microorganisms & Lab	R	R	M	M
PHYL 354/354L Exercise Physiology & Lab (WI)	R, M	R	R	R
HLTH 3XX Structural Kinesiology	R	R	R	R
ZOOL 410 Corals and Coral Reefs	R	R	R	M
ZOOL 450 Natural History of the Hawaiian Islands	R	R	R	R
NSCI 486L Senior Project	M	M	M	M
NSCI 490L Senior Practicum	M	M	M	M

Curriculum Mapping

Health Science (2019-2020)

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Concentration Learning Outcome (CLO) Definitions

CLO1: Explain the basic foundations of biological, social, and behavioral sciences as they apply to the principles of health science

CLO2: Identify and evaluate ethical, cultural, socio-economic, behavioral, biological, and environmental factors that impact human health, contribute to health disparities, and provide opportunities for promoting and protecting health across the life course

CLO3: Synthesize, integrate, and analyze research in health science literature and formally communicate scientific information in oral, written, and electronic formats

CLO4: Demonstrate knowledge of Native Hawaiian culture and the physical and natural world as it relates to individual and population health

CLO5: Articulate and exhibit appropriate professional skills and ethical behaviors needed for successful careers in the health science field

Course	CLO1:	CLO2	CLO3	CLO4	CLO5
NSCI 198B Transdisciplinary Intro to Laboratory Methods	I	I	I	N/A	N/A
HLTH 117 Survey of Health Professions	I	I	N/A	N/A	I
HLTH 123 Intro to Clinical Skills and Patient Care	I	I	N/A	N/A	I
PSY 100 Survey of Psychology	I	N/A	N/A	N/A	N/A
NSCI 298B Transdisciplinary Intro to Research Methods	I, R	I, R	I, R	N/A	N/A
BIOL 171/ 171L Intro to Bio I & Lab	I	I	I	I	N/A
BIOL 172/ 172L Intro to Bio II & Lab	I	I	I	I	N/A
CHEM 161/ 161 L General Chemistry I & Lab	N/A	I	N/A	I	N/A
CHEM 162/ 162 L General Chemistry II & Lab	N/A	I	N/A	I	N/A
PHYL 141/141L Human Anatomy & Physiology I and Lab	I	I	I	N/A	N/A
PHYL 142/142L Human Anatomy & Physiology I and Lab	I, R	I, R	I, R	N/A	N/A
Physics 151 /151L College	N/A	I	N/A	N/A	N/A
Physics I & Lab	N/A	N/A	N/A	N/A	N/A
Physics 152 /152L College Physics I & Lab	N/A	I	N/A	N/A	N/A
ICS 101 Digital Tools for the Information World	N/A	I	N/A	N/A	N/A
ICS 111 Introduction to Computer Science	N/A	I	N/A	N/A	N/A

Course	CLO1:	CLO2	CLO3	CLO4	CLO5
MATH 241 Calculus I	N/A	R	N/A	N/A	N/A
MATH 242 Calculus II	N/A	R	N/A	N/A	N/A
HLTH 204 Intro to NH & Indigenous Health & Healing	I	I	N/A	I	N/A
HLTH 205 Hawaiian Ways of Healing	I	I	N/A	I	N/A
NSCI 211 Interdisciplinary Indigenous Sciences & Health	I	I	N/A	I	I
MATH 304 Mathematical Modeling	R	R	N/A	N/A	N/A
HLTH 395 Health and Wellness for Life	N/A	R	R	N/A	R
HLTH 350 Biostatistics	N/A	N/A	R	N/A	N/A
BIOL 365 Research Methods o	N/A	N/A	R, M	N/A	N/A
PUBA 308 Community Engaged Research Methods	N/A	N/A	R, M	N/A	N/A
HLTH 309 Healthcare Statistics and Research Methods	N/A	N/A	R, M	N/A	N/A
BIOL 401 Ethics for Biologists	N/A	M	N/A	N/A	M
PUBA 477 Ethics in Healthcare Administration	N/A	M	N/A	N/A	M
PUBA 314 Community Epidemiology and Population Health	N/A	R, M	N/A	R, M	N/A
PUBA 338 Cultural Competence in Healthcare	N/A	R, M	N/A	R, M	R, M
BIOL 340 Genetics, Evolution, and Society	R	R	N/A	N/A	N/A

Course	CLO1:	CLO2	CLO3	CLO4	CLO5
HLTH 3XX Functional Anatomy	R	N/A	N/A	N/A	N/A
BIOL 302 The One Health Approach to Infectious Disease	R	R	R	N/A	N/A
SCFS 340 Food Sov, Nutrition, & Human Wellbeing	R	R	R	R	N/A
SOC 354 Survey of Medical Sociology	R	R	R	N/A	N/A
SOC 335 Death, Dying, and Bereavement	R	R	N/A	N/A	N/A
PSY 371 Abnormal Psychology	R	N/A	N/A	N/A	N/A
PHYL 354/354L Exercise Physiology & Lab	R	R	R	N/A	R
PUBA 354 Program Planning and Eval in Health	N/A	R	N/A	N/A	R
PUBA 302 Health Policy, Politics, and Law	N/A	R	R	N/A	R
PUBA 318 Managed Care	N/A	I, R	N/A	I, R	N/A
PUBA 303 Financial Concepts	N/A	N/A	N/A	N/A	I, R
PSY 473 Psychology of Healing	M	M	N/A	N/A	N/A
NSCI 411 Interdisciplinary Seminar	M	M	M	M	N/A
PUBA 446 Contemporary Issues in Healthcare	N/A	M	N/A	N/A	M
SOC 479 ASCP Research in Health	M	M	M	M	M
ANTH 425 Medical Anthropology	R, M	R, M	N/A	N/A	N/A

Course	CLO1:	CLO2	CLO3	CLO4	CLO5
ANTH 480 Land, Culture & Social Justice	R, M	R, M	N/A	N/A	N/A
NSCI 486H Senior Project	M	M	M	M	M
NSCI 490H Senior Practicum	M	M	M	M	M

Curriculum Mapping

Applied Math (2019-2020)

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Concentration Learning Outcome (CLO) Definitions

CLO1: To demonstrate a general understanding of the different areas of mathematics and its applications and interrelationships, and the importance of mathematics in a scientifically-oriented society.

CLO2: To master set of classical theorem-proving skills, including but not limited to the ability to reason quantitatively and to apply the rigor necessary to construct proofs, proofs by contradiction, and proofs by induction.

CLO3: To develop refined understanding of the problem-solving process, formulate definitions, give examples and counterexamples, and make inferences and generalizations.

CLO4: To experience conducting research and reading, writing, and articulating mathematically-related material, utilizing working knowledge of technology appropriate to mathematical sciences.

CLO5: To develop set of necessary skills to solve problems using a variety of techniques, including algebraic, numerical, and spatial reasoning through visualization.

Course	CL01:	CL02	CL03	CL04	CL05
NSCI 198B Transdisciplinary Intro to Laboratory Methods	I	N/A	I	I	I
BIOL 171/ 171L Intro to Bio I & Lab	N/A	N/A	I	I	I
BIOL 172/ 172L Intro to Bio II & Lab	N/A	N/A	I	I	I
CHEM 161/ 161 L General Chemistry I & Lab	N/A	N/A	I	I	I
CHEM 162/ 162 L General Chemistry II & Lab	N/A	N/A	I	I	I
ICS 101 Digital Tools for the Information World	N/A	N/A	I	N/A	N/A
ICS 111 Introduction to Computer Science	N/A	N/A	I	N/A	N/A
NSCI 298B Transdisciplinary Intro to Research Methods	N/A	N/A	I, R	I, R	N/A
MATH 241 Calculus I	I	I	I	I	I
MATH 242 Calculus II	R	R	R	R	R
Physics 151 /151L College Physics I & Lab	I	I	I	I	I
Physics 152 /152L College Physics I & Lab	I, R	I, R	I, R	I, R	I, R
HLTH 204 Intro to NH & Indigenous Health & Healing	N/A	N/A	I	I	N/A
HLTH 205 Hawaiian Ways of Healing	N/A	N/A	I	I	N/A
NSCI 211 Interdisciplinary Indigenous Sciences and Health	N/A	N/A	I	I	N/A
MATH 245 Multivariable Calculus	I	I	I	R	R

Course	CL01:	CL02	CL03	CL04	CL05
MATH 301 Introduction to Discrete Mathematics	R	R	R	I	R, M
MATH 304 Mathematical Modeling: Deterministic Models	R	N/A	R	R	R, M
MATH 307 Linear Algebra & Differential Equations	R	R	R	R	R, M
MATH 321 Introduction to Advanced Mathematics	M	M	M	R	M
MATH 327 Origins of Mathematics	M	R	R	R	M
MATH 331 Introduction to Real Analysis	M	M	M	R	M
MATH 351 Foundation of Euclidean Geometry	M	M	M	R	M
MATH 361 Applied Probability Theory	R, M	R, M	R, M	R	R, M
MATH 405 Ordinary Differential Equations and Stability Theory	R, M	R, M	R, M	R, M	M
MATH 407 Numerical Analysis	M	M	R	R	M
NSCI 411 Interdisciplinary Seminar	N/A	N/A	N/A	N/A	N/A
MATH 411 Linear Algebra	R	R, M	R	R	R, M
MATH 412 Introduction to Abstract Algebra	M	M	M	R, M	R, M
MATH 413 Introduction to Abstract Algebra	M	M	M	R, M	R, M
MATH 417 Linear Algebra: Theory and Application	M	M	M	M	R, M
MATH 444 Complex Analysis	M	M	M	R, M	M

Course	CL01:	CL02	CL03	CL04	CL05
MATH 461 Applied Statistics	R, M	R, M	R, M	R	R, M
MATH 480 Senior Seminar	M	M	M	M	M
MATH 496 (Ind. R)	I, R, M	I, R, M	I, R, M	I, R, M	I, R, M
MATH 409 Methods in Applied Mathematics	M	R	M	M	M
NSCI 486M Senior Project	M	M	M	M	M
NSCI 490M Senior Practicum	M	M	M	M	M