BIOLOGICAL SCIENCES

Program Purpose: Students who complete Biological Science courses will examine and assess the place of various organisms in the natural world. They will understand how evolutionary principles provide a comprehensive model for understanding the origins of living organisms and the changes they undergo. They will be able to interpret statements about the relationships between living organisms, identify the evidence appropriate for discussing these statements and determine the validity of these statements.

Study in Biology leads to a wide range of careers upon the attainment of the baccalaureate degree. Many students prepare for entry into graduate or professional schools upon graduation; programs in dentistry, medicine, nursing, pharmacy, and similar professions depend upon an emphasis in biological sciences. Careers are found in teaching, research, and government service.

Most careers require additional degrees. To explore specific career options, check the software and online resources available in the Career Transfer Center located in Fountain Hall, (805) 378-1536.

Transfer Information

Students planning to transfer need to consult with a counselor, prepare a Student Education Plan, and take advantage of the support services available in the Career Transfer Center located in Fountain Hall, (805) 378-1536.

NOTE: Some courses may have credit limitations. Refer to the Credit Limitations and UC Credit Limitations areas or see the UC Transfer Course Agreement (http://catalog.vccd.edu/moorpark/transfer-information/transfer-uc/#uctcatext) page for details.

Anatomy Courses

ANAT M01 Human Anatomy 4 Units
In-Class Hours: 35 lecture, 105 laboratory
Advisories/Rec Prep: BIOL M01 or BIOL M02A or BIOL M02AH and Introduction to College Writing (ENGL M02) and Intermediate Algebra (MATH M03) or placement as determined by the college’s multiple measures assessment process
C-ID: BIOL 110B
Examines the anatomy of human organs and organ systems from a functional perspective that focuses on an understanding of the design of the human body. Teaches, in the laboratory setting, how to distinguish tissue types through histological specimens. Studies the three-dimensional relationship of body structures through required non-human mammalian dissection. Demonstrates, using human cadavers, the gross anatomy of the human body.
Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: A1
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B2, B3
IGETC: 5B, 5C

ANAT M122 Independent Study - Anatomy 0.5-3 Units
In-Class Hours: 26.25-157.5 laboratory
Prerequisites: Completion of one course in Anatomy and instructor approval
Allows independent study for students who wish to extend their knowledge of a particular area of Anatomy through research and study. Utilizes an approved independent project. Includes one-on-one work with instructor. Interested students should contact an Anatomy instructor for assistance in developing a contract for learning about a specific topic.
Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: None
Transfer Credit: CSU
UC Credit Limitations: None
CSU GE-Breadth: None
IGETC: None

Anatomy/Physiology Courses

ANPH M01 Human Anatomy and Physiology 6 Units
In-Class Hours: 70 lecture, 105 laboratory
Advisories/Rec Prep: BIOL M02A or BIOL M02AH or CHEM M11
Introduces the structures and the relationships of human body parts. Explores how the functioning of human body parts are related to their structures. Combines the study of anatomy and physiology which allows students to effectively integrate the study of structure with functioning of the system. Utilizes themes of hierarchical structural organization and the maintenance of homeostasis to form the framework for the study of the human system at both macroscopic and microscopic levels. Examines the structure/function relationship through the required dissection of a fetal pig in the laboratory portion. Utilizes a human cadaver to demonstrate the principles of the anatomy of the human body.
Catalog Notes: Course credit limitation: MC, CSU, and UC - ANPH M01 and ANAT M01 combined: maximum credit, 1 course; ANPH M01 and PHSO M01 (or PHSO M01H) combined: maximum credit, 1 course.
Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Degree Applicability: Applies to Associate Degree
AA/AS GE: A1
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B2, B3
IGETC: None

ANPH M122 Independent Study - Physiology 2.25-3.75 Units
In-Class Hours: 26.25-157.5 laboratory
Prerequisites: Completion of one course in Physiology and instructor approval
Allows independent study for students who wish to extend their knowledge of a particular area of Physiology through research and study. Utilizes an approved independent project. Includes one-on-one work with instructor. Interested students should contact an Physiology instructor for assistance in developing a contract for learning about a specific topic.
Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: None
Transfer Credit: CSU
UC Credit Limitations: None
CSU GE-Breadth: None
IGETC: None
Biological Sciences

Biology Courses

BIOL M01 Introduction to Biology 4 Units
In-Class Hours: 52.5 lecture, 52.5 laboratory
Introduces non-majors to science and scientific methodology through a study of the basic principles of biology. Focuses on student understanding of the unity and diversity of life through discussions of topics that include biological chemistry, metabolism, cell biology, molecular biology, genetics, evolution of living systems, and ecology. Examines the implications of the science of biology on human affairs.
Catalog Notes: Course Credit Limitation: MC, CSU and UC - no credit if taken after BIOL M02A or BIOL M02AH.
Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Field Trips: May be required
Degree Applicability: Applies to Associate Degree
AA/AS GE: A1
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B2, B3
IGETC: 5B, 5C

BIOL M02A General Biology I 5 Units
In-Class Hours: 70 lecture, 52.5 laboratory
Prerequisites: MATH M03 or 2 years of high school algebra or placement as determined by the college's multiple measures assessment process and CHEM M12 or high school chemistry
C-ID: BIOL 190, BIOL 135S (with BIOL M02B)
Introduces students to major biological themes and principles that are fundamental to an understanding of life processes in any field of biology today. Includes the scientific process, experimental design, biological chemistry, prokaryotic and eukaryotic cell structure and function, cellular metabolism, cell reproduction and its controls, cell communication, genetics, molecular biology, DNA technology and evolutionary processes.
Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Credit Limitations: 1) Students cannot complete both BIOL M02A and BIOL M02AH. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". MC Honors Program requires a letter grade. 2) No credit will be awarded for BIOL M01 if taken after BIOL M02A or BIOL M02AH.
Degree Applicability: Applies to Associate Degree
AA/AS GE: A1
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B2, B3
IGETC: 5B, 5C

BIOL M02AH Honors: General Biology I 5 Units
In-Class Hours: 70 lecture, 52.5 laboratory
Prerequisites: MATH M03 or 2 years of high school algebra or placement as determined by the college's multiple measures assessment process and CHEM M12 or high school chemistry
C-ID: BIOL 190, BIOL 135S (with BIOL M02B)
Introduces students to major biological themes and principles that are fundamental to an understanding of life processes in any field of biology today. Includes the scientific process, experimental design, biological chemistry, prokaryotic and eukaryotic cell structure and function, cellular metabolism, cell reproduction and its controls, cell communication, genetics, molecular biology, DNA technology and evolutionary processes. Honors work challenges students to be more analytical and creative through expanded assignments, real-world applications, and enrichment opportunities.
Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Credit Limitations: 1) Students cannot complete both BIOL M02A and BIOL M02AH. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". MC Honors Program requires a letter grade. 2) No credit will be awarded for BIOL M01 if taken after BIOL M02A or BIOL M02AH.
Degree Applicability: Applies to Associate Degree
AA/AS GE: A1
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B2, B3
IGETC: 5B, 5C

BIOL M02B General Biology II 5 Units
In-Class Hours: 70 lecture, 52.5 laboratory
Prerequisites: BIOL M02A or BIOL M02AH
C-ID: BIOL 140, BIOL 135S (with BIOL M02B)
Surveys the basic biology and diversity of unicellular and multicellular organisms. Emphasizes general biological principles, classification, structure, function and evolutionary adaptations of organisms (including plants, fungi, animals, and unicellular organisms) to their environments.
Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Degree Applicability: Applies to Associate Degree
AA/AS GE: A1
Transfer Credit: CSU, UC
UC Credit Limitations: None
CSU GE-Breadth: B2, B3
IGETC: 5B, 5C
BIOL M02C  Genetics and Molecular Biology  5 Units  
*In-Class Hours:* 70 lecture, 52.5 laboratory  
*Prerequisites:* BIOL M02A or BIOL M02AH  
*Advisories/Rec Prep:* CHEM M07A or CHEM M11 or CHEM M13 or equivalent  
*Grade Modes:* Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading  
*Degree Applicability:* Applies to Associate Degree  
*AA/AS GE:* A1  
*Transfer Credit:* CSU, UC  
*UC Credit Limitations:* None  
*CSU GE-Breadth:* B2, B3  
*IGETC:* 5B, 5C

BIOL M03  Marine Life and Its Environment  4 Units  
*In-Class Hours:* 52.5 lecture, 52.5 laboratory  
Examines marine organisms and their relationships to their environment while emphasizing intertidal and offshore life forms. Includes an investigation of behavior, ecology, morphological and physiological adaptations and environmental relationship to humans.  
*Grade Modes:* Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading  
*Field Trips:* May be required  
*Degree Applicability:* Applies to Associate Degree  
*AA/AS GE:* A1  
*Transfer Credit:* CSU, UC  
*UC Credit Limitations:* None  
*CSU GE-Breadth:* B2, B3  
*IGETC:* 5B, 5C

BIOL M05  Field Biology: A Natural History of California  4 Units  
*In-Class Hours:* 52.5 lecture, 52.5 laboratory  
Introduces the ecology, taxonomy, and natural history of plant life in the diverse ecosystems of California. Uses the principles of evolution, ecology, and geology to illustrate the structure of plant communities that form the basis of ecosystems. Includes identification of dominant plant species in each community and visits to desert, salt and fresh water wetlands, chaparral, and mountain habitats to explore plant, animal, and environmental interactions and the impact of humans on these environments.  
*Grade Modes:* Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading  
*Field Trips:* Will be required  
*Degree Applicability:* Applies to Associate Degree  
*AA/AS GE:* A1  
*Transfer Credit:* CSU, UC  
*UC Credit Limitations:* None  
*CSU GE-Breadth:* B2, B3  
*IGETC:* 5B, 5C

BIOL M12A  Environmental Control and Process Support  2 Units  
*Same-As:* BIOT M02A  
*In-Class Hours:* 17.5 lecture, 52.5 laboratory  
Provides skills training in manufacturing of biopharmaceuticals and medical devices. Presents an overview of the manufacturing process and introduces environmental control and process support with a focus on Good Laboratory Practices (GLP)/Good Manufacturing Practices (GMP), clean room procedure, monitoring techniques, and required documentation.  
*Grade Modes:* Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading  
*Degree Applicability:* Applies to Associate Degree  
*AA/AS GE:* None  
*Transfer Credit:* CSU  
*UC Credit Limitations:* None  
*CSU GE-Breadth:* None  
*IGETC:* None

BIOL M12B  Manufacturing: Quality Control and Validation  2 Units  
*Same-As:* BIOT M02B  
*C-ID:* BIOT 210X  
Provides skills training in industrial biotechnology with emphasis on manufacturing of pharmaceuticals and medical devices. Introduces validation and quality control. Reviews manufacturing process, including formulation, lyophilization, packaging and filling. Focuses on validation, systems evaluations, testing and reporting.  
*Grade Modes:* Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading  
*Degree Applicability:* Applies to Associate Degree  
*AA/AS GE:* None  
*Transfer Credit:* CSU  
*UC Credit Limitations:* None  
*CSU GE-Breadth:* None  
*IGETC:* None

BIOL M12C  Manufacturing: Cell Culture and Microbial Fermentation  3 Units  
*Same-As:* BIOT M02C  
*C-ID:* BIOT 230X  
Provides skills training in industrial biotechnology with emphasis on manufacturing pharmaceuticals. Introduces cell culture and microbial fermentation. Focuses on bacterial techniques, microbial assessment, mammalian cell culture, bioreactor fermentation, and media preparation. Compares small and large industrial scale cell culture.  
*Grade Modes:* Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading  
*Degree Applicability:* Applies to Associate Degree  
*AA/AS GE:* None  
*Transfer Credit:* CSU  
*UC Credit Limitations:* None  
*CSU GE-Breadth:* None  
*IGETC:* None
BIOL M12D  Bioprocessing: Recovery and Purification  2 Units
Same-As:  BIOT M02D
In-Class Hours:  17.5 lecture, 52.5 laboratory
C-ID:  BIOT 220BX
Provides skills training in industrial biotechnology with emphasis on manufacturing pharmaceuticals. Introduces bioprocessing, recovery, and purification techniques. Focuses on protein separation and purification, chromatography, large-scale recovery, and identification of assays. Reviews skills necessary for a successful job search in the field of biotechnology.
Grade Modes:  Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Degree Applicability:  Applies to Associate Degree
AA/AS GE:  None
Transfer Credit:  CSU
UC Credit Limitations:  None
CSU GE-Breadth:  None
IGETC:  None

BIOL M12E  Business & Government Regulation  2 Units
Same-As:  BIOT M02E
In-Class Hours:  35 lecture
Provides skills training in industrial biotechnology with emphasis on manufacturing pharmaceuticals. Examines manufacturing from the perspective of company operations involved with the drug or medical device development process. Focuses on business practices and governmental regulations.
Grade Modes:  Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Degree Applicability:  Applies to Associate Degree
AA/AS GE:  None
Transfer Credit:  CSU
UC Credit Limitations:  None
CSU GE-Breadth:  None
IGETC:  None

BIOL M13  Introduction to Biotechnology and Molecular Biology  4 Units
Same-As:  BIOT M10
In-Class Hours:  52.5 lecture, 52.5 laboratory
C-ID:  BIOT 150BX
Examines the role of molecular biology in the manufacturing of commercial pharmaceutical and agricultural products. Introduces basic biotechnology laboratory skills, including documentation, safety, and solution and buffer preparation. Develops student proficiency in aseptic techniques, spectrophotometry, molecular biology techniques, and electrophoresis.
Grade Modes:  Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Degree Applicability:  Applies to Associate Degree
AA/AS GE:  None
Transfer Credit:  CSU, UC
UC Credit Limitations:  None
CSU GE-Breadth:  None
IGETC:  None

BIOL M16  Human Biology  3 Units
In-Class Hours:  52.5 lecture
Introduces the biology of humans covering basic cell structure, organ systems, inheritance, reproduction, development and aging, disease process, and human evolution and ecology. Explores biology as a scientific endeavor and analyzes the functioning of the human body both as an integrated system and as a part of the ecosystem with special attention to physiological structure and function. Emphasizes acquisition of knowledge needed to make intelligent decisions on bioethical issues that face society.
Grade Modes:  Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Degree Applicability:  Applies to Associate Degree
AA/AS GE:  A1
Transfer Credit:  CSU, UC
UC Credit Limitations:  None
CSU GE-Breadth:  B2
IGETC:  5B

BIOL M16L  Human Biology Lab  1 Unit
In-Class Hours:  52.5 laboratory
Prerequisites:  BIOL M16 or concurrent enrollment
Provides hands-on laboratory activities to support the understanding of human biology. Explores, through laboratory exercises, human anatomy and physiology, the scientific method and appropriate data analysis.
Grade Modes:  Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Degree Applicability:  Applies to Associate Degree
AA/AS GE:  None
Transfer Credit:  CSU, UC
UC Credit Limitations:  None
CSU GE-Breadth:  B3
IGETC:  5C

BIOL M17  Heredity, Evolution and Society  3 Units
In-Class Hours:  52.5 lecture
Introduces principles of modern genetics and evolutionary theory with specific reference to the human species. Examines scientific method, biological laws governing heredity in individuals and populations, biological factors that influence health and disease, and the interplay between the human population and the environment. Analyzes the world's economic, demographic, and political problems from a biological perspective and discusses possible solutions.
Grade Modes:  Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
Field Trips:  May be required
Degree Applicability:  Applies to Associate Degree
AA/AS GE:  A1
Transfer Credit:  CSU, UC
UC Credit Limitations:  None
CSU GE-Breadth:  B2
IGETC:  5B
Biol M18 Human Biology for Pre-Allied 3 Units
*In-Class Hours:* 52.5 lecture
Covers major aspects of human biology related to health science careers. Emphasizes the chemical, molecular, and physiological mechanisms underlying most common disease conditions.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
**Field Trips:** May be required
**Credit Limitations:** Credit will not be awarded for both BIOL M16 and BIOL M18 courses. Credit will be awarded only for the first course completed with a grade of "C" or better or "P".

**Degree Applicability:** Applies to Associate Degree
**AA/AS GE:** A1
**Transfer Credit:** CSU
**UC Credit Limitations:** None
**CSU GE-Breadth:** B2
**IGETC:** None

Biol M50A Bridge to Biotechnology 0.5 Units
*Same-As:* BIOT M50A
*In-Class Hours:* 26.25 laboratory
Develops practical, hands-on experience with laboratory techniques used in the field of biotechnology. Applies specific techniques that vary depending on the current state of technology. Provides a bridge for entry-level and high school students who are interested in exploring the field of biotechnology.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
**Degree Applicability:** Applies to Associate Degree
**AA/AS GE:** None
**Transfer Credit:** CSU
**UC Credit Limitations:** None
**CSU GE-Breadth:** None
**IGETC:** None

Biol M80 Internship in Biology 1-4 Units
*In-Class Hours:* 60-240 unpaid cooperative, 75-300 paid cooperative

**Prerequisites:** Completion of or concurrent enrollment in one course in the discipline and instructor approval. Course Credit Limitation: To take this course, contact the Career Transfer Center. Requires orientation session. Students receive one unit of credit for each 60 hours unpaid or 75 hours paid work. May enroll in up to 4 units a semester with a maximum of 16 total units of any type of work experience. Provides on-the-job learning to develop effective work habits, attitudes, and career awareness in paid or unpaid internships that are related to the discipline. Involves the development and documentation of learning objectives and the completion of an internship paper, presentation, or project. Includes both workplace supervisor and faculty adviser feedback and/or written evaluations.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
**Repeatable for Credit:** Course may be taken up to 3 times for credit.
**Degree Applicability:** Applies to Associate Degree
**AA/AS GE:** None
**Transfer Credit:** CSU
**UC Credit Limitations:** None
**CSU GE-Breadth:** None
**IGETC:** None

Biol M122 Independent Study - Biology 0.5-3 Units
*Formerly:* BIOL M22A
*In-Class Hours:* 26.25-157.5 laboratory
**Prerequisites:** Completion of one course in Biology and instructor approval
Allows independent study for students who wish to extend their knowledge of a particular area of Biology through research and study. Utilizes an approved independent project. Includes one-on-one work with instructor. Interested students should contact a Biology instructor for assistance in developing a contract for learning about a specific topic.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
**Degree Applicability:** Applies to Associate Degree
**AA/AS GE:** None
**Transfer Credit:** CSU
**UC Credit Limitations:** None
**CSU GE-Breadth:** None
**IGETC:** None

Botany Courses

**BOT M01 Introduction to Botany 5 Units**
*In-Class Hours:* 52.5 lecture, 105 laboratory
**Advisories/Rec Prep:** BIOL M02A or BIOL M02AH
Emphasizes the physical and chemical aspects of life as related to plants. Includes cellular organization, metabolism, reproduction, heredity, ecology, evolution, and plant kingdom survey. Examines the anatomy and physiology of representative plants in each of the major plant groupings.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
**Field Trips:** May be required
**Degree Applicability:** Applies to Associate Degree
**AA/AS GE:** A1
**Transfer Credit:** CSU, UC
**UC Credit Limitations:** None
**CSU GE-Breadth:** B2, B3
**IGETC:** 5B, 5C

**BOT M06 Plants and Society 4 Units**
*In-Class Hours:* 52.5 lecture, 52.5 laboratory
Introduces basic concepts related to plant structure, function, genetics, evolution, and domestication. Examines the economic, aesthetic, and ecological roles of plants, and considers the role of plants as a force in shaping civilizations. Stresses the importance of plants and plant products in everyday life, as well as their ritualistic and pharmacological uses. Presents basic scientific principles and techniques using examples from plants and their products to gain an understanding of science and its value in today's society.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading
**Field Trips:** May be required
**Degree Applicability:** Applies to Associate Degree
**AA/AS GE:** A1
**Transfer Credit:** CSU, UC
**UC Credit Limitations:** None
**CSU GE-Breadth:** B2, B3
**IGETC:** 5B, 5C
**BOT M122 Independent Study - Botany 0.5-3 Units**  
*In-Class Hours:* 26.25-157.5 laboratory  
*Prerequisites:* Completion of one course in Botany and instructor approval  
Allows independent study for students who wish to extend their knowledge of a particular area of Botany through research and study. Utilizes an approved independent project. Includes one-on-one work with instructor. Interested students should contact a Botany instructor for assistance in developing a contract for learning about a specific topic.  
*Grade Modes:* Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading  
*Field Trips:* May be required

**Microbiology Courses**

**MICR M01 General Microbiology 5 Units**  
*In-Class Hours:* 52.5 lecture, 105 laboratory  
*Prerequisites:* BIOL M02A or BIOL M02AH or PHSO M01 or PHSO M01H and CHEM M01A or CHEM M01AH or CHEM M12 or CHEM M11 or high school Chemistry equivalent  
Emphasizes microbiological principles and lab techniques related to the morphology, metabolism, genetics, classification, and ecology of bacteria. Characterizes viruses and eukaryotic microorganisms. Focuses on human disease including characteristics of pathogens, immunology, and epidemiology. Practices laboratory exercises including aseptic technique, staining, the determination of bacterial growth conditions and requirements, and the identification of an unknown bacterium. Applies microbiology in clinical applications.  
*Grade Modes:* Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading  
*Degree Applicability:* Applies to Associate Degree  
*AA/AS GE:* A1  
*Transfer Credit:* CSU, UC  
*UC Credit Limitations:* None  
*CSU GE-Breadth:* B2, B3  
*IGETC:* 5B, 5C

**Physiology Courses**

**PHSO M01 Human Physiology 4 Units**  
*In-Class Hours:* 52.5 lecture, 52.5 laboratory  
*Prerequisites:* ANAT M01 or concurrent enrollment and 1 year of high school Chemistry (or higher)  
*Advisories/Rec Prep:* BIOL M01 or BIOL M02A or BIOL M02AH and Introduction to Writing (ENGL M02) and Intermediate Algebra (MATH M03) or equivalent or placement as determined by the college’s multiple-measure assessment process  
*C-ID:* BIOL 120B  
Studies the physiological principles, function, integration and homeostasis of the human body at the cellular, tissue, organ, organ system and organism level: integumentary system, bone, skeletal system, smooth and cardiac muscles, nervous system, sensory organs, cardiovascular system, lymphatic and immune systems, respiratory system, urinary system, digestive system, endocrine system, and reproductive system. Utilizes laboratory computer simulations and experiments to demonstrate basic principles and introduce physiological techniques and instruments.  
*Catalog Notes:* This course is primarily intended for Nursing, Allied Health, Kinesiology, and other health-related majors.  
*Grade Modes:* Letter Graded, Credit by exam, license etc., Student Option- Letter/Credit, Pass/No Pass Grading  
*Credit Limitations:* 1) Credit will not be awarded for both the honors and regular versions of a course. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". Moorpark College Honors program requires a letter grade. 2) MC and CSU - PHSO M01 or PHSO M01H and ANPH M01 combined: maximum credit, one course.  
*Degree Applicability:* Applies to Associate Degree  
*AA/AS GE:* A1  
*Transfer Credit:* CSU, UC  
*UC Credit Limitations:* ANPH M01, PHSO M01, and PHSO M01H combined: maximum credit, one course  
*CSU GE-Breadth:* B2, B3  
*IGETC:* 5B, 5C

**MICR M122 Independent Study-Microbiology 0.5-3 Units**  
*In-Class Hours:* 26.25-157.5 laboratory  
*Prerequisites:* Completion of one course in Mathematics and instructor approval  
Allows independent study for students who wish to extend their knowledge of a particular area of Microbiology through research and study. Utilizes an approved independent project. Includes one-on-one work with instructor. Interested students should contact a Microbiology instructor for assistance in developing a contract for learning about a specific topic.  
*Grade Modes:* Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading  
*Degree Applicability:* Applies to Associate Degree  
*AA/AS GE:* None  
*Transfer Credit:* CSU  
*UC Credit Limitations:* None  
*CSU GE-Breadth:* None  
*IGETC:* None
**PHSO M01H Honors: Human Physiology 4 Units**

*In-Class Hours: 52.5 lecture, 52.5 laboratory*

*Prerequisites: ANAT M01 or concurrent enrollment and 1 year of high school Chemistry (or higher)*

*Advisories/Rec Prep: BIOL M01 or BIOL M02A or BIOL M02AH and Introduction to Writing (ENGL M02) and Intermediate Algebra (MATH M03) or equivalent or placement as determined by the college’s multiple-measure assessment process*

Studies the physiological principles, function, integration and homeostasis of the human body at the cellular, tissue, organ, organ system and organism level: integumentary system, bone, skeletal system, smooth and cardiac muscles, nervous system, sensory organs, cardiovascular system, lymphatic and immune systems, respiratory system, urinary system, digestive system, endocrine system, and reproductive system. Utilizes laboratory computer simulations and experiments to demonstrate basic principles and introduce physiological techniques and instruments. Honors work challenges students to be more analytical and creative through expanded assignments, real-world applications, and enrichment opportunities.

**Catalog Notes:** This course is primarily intended for Nursing, Allied Health, Kinesiology, and other health-related majors.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** 1) Credit will not be awarded for both the honors and regular versions of a course. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". Moorpark College Honors program requires a letter grade; 2) MC and CSU - PHSO M01 or PHSO M01H and ANPH M01 combined: maximum credit, one course.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** A1

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B2, B3

**IGETC:** 5B, 5C

**PHSO M122 Independent Study - Physiology 0.5-3 Units**

*In-Class Hours: 26.25-157.5 laboratory*

*Prerequisites: Completion of one course in Physiology and instructor approval*

Allows independent study for students who wish to extend their knowledge of a particular area of Physiology through research and study. Utilizes an approved independent project. Includes one-on-one work with instructor. Interested students should contact a Physiology instructor for assistance in developing a contract for learning about a specific topic.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

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**Zoo M01 Introduction to Zoology 5 Units**

*In-Class Hours: 52.5 lecture, 105 laboratory*

*Prerequisites: BIOL M02A or BIOL M02AH*

Covers the comparative structure, function, evolution, and a survey of animal phyla. Includes development, morphology and physiology, microevolution and macroevolution, taxonomy and systematics, molecular and morphological phylogeny, and animal behavior.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** A1

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B2, B3

**IGETC:** 5B, 5C

**ZOO M122 Independent Study - Zoology 0.5-3 Units**

*In-Class Hours: 26.25-157.5 laboratory*

*Prerequisites: Completion of one course in Zoology and instructor approval*

Allows independent study for students who wish to extend their knowledge of a particular area of Zoology through research and study. Utilizes an approved independent project. Includes one-on-one work with instructor. Interested students should contact a Zoology instructor for assistance in developing a contract for learning about a specific topic.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

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**Dean**

Carol Higashida, Phone (805) 378-1459

**Faculty**

Sandy Bryant, Audrey Chen, Katherine Courtney, Hovik Gasparyan, Carrie Geisbauer, Jazmir Hernandez, Jana Johnson, Subhash Karkare, Nathan Marten, Beth Miller, Eric Shargo, Melia Tabbakhian, Sean Wilcox

**Counselors**

Daniel Aguilar, Eddie Beltran, Chuck Brinkman, Pablo Diaz, Jodi Dickey, Trevor Hess, Ashley Lajoie, Samantha Zaldivar