BIOL 0106

CAUSES OF DISEASES

This course surveys the four main types of cause of disease: infectious, genetics, environmental, and congenital. The main emphasis is on infectious causes, with additional coverage of genetics, environmental factors, and congenital defects.

Course Code: BI 110

BIOL 110

GENETICS AND EVOLUTION

This course is an introduction to the study of genetics and evolution. It covers the basic principles of genetics, including Mendelian inheritance, linkage, and mapping. It also covers the principles of population genetics, including natural selection, mutation, and genetic drift.

Course Code: BI 111

BIOL 111

BIOCHEMISTRY

This course covers the basic principles of biochemistry, including carbohydrate, lipid, protein, and nucleic acid metabolism. It also covers the principles of enzyme kinetics, and the regulation of metabolism by hormones and other factors.

Course Code: BI 112

BIOL 112

ECOLOGY

This course covers the basic principles of ecology, including population ecology, community ecology, and ecosystem ecology. It also covers the principles of conservation biology, and the role of humans in shaping ecosystems.

Course Code: BI 113

BIOL 113

HUMAN GENETICS

This course covers the basic principles of human genetics, including chromosomal genetics, mendelian genetics, and linkage genetics. It also covers the principles of genetic counseling, and the genetic basis of human disease.

Course Code: BI 114

BIOL 114

ECOLOGY

This course covers the basic principles of ecology, including population ecology, community ecology, and ecosystem ecology. It also covers the principles of conservation biology, and the role of humans in shaping ecosystems.

Course Code: BI 115

BIOL 115

HUMAN GENETICS

This course covers the basic principles of human genetics, including chromosomal genetics, mendelian genetics, and linkage genetics. It also covers the principles of genetic counseling, and the genetic basis of human disease.

Course Code: BI 116

BIOL 116
Baccalaureate Core Communications
COMM 111  
*PUBLIC SPEAKING  
3

Baccalaureate Core Writing II
WR 327  
*TECHNICAL WRITING  
or WR 362  
*SCIENCE WRITING  
3

Mathematics and Statistics Core
MTH 251  
&Differential Calculus  
and Integral Calculus  
8
MTH 252  
& MTH 227  
& MTH 228  
*Calculus and Probability for the Life Sciences I  
and Calculus and Probability for the Life Sciences II  
4
ST 351  
INTRODUCTION TO STATISTICAL METHODS  
4
ST 352  
INTRODUCTION TO STATISTICAL METHODS  
or ST 411  
& ST 412  
METHODS OF DATA ANALYSIS  
& METHODS OF DATA ANALYSIS  
4-8

Chemistry Core
CH 231  
GENERAL CHEMISTRY  
5
& CH 261  
and *LABORATORY FOR CHEMISTRY 231  
5
CH 232  
GENERAL CHEMISTRY  
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& CH 262  
and *LABORATORY FOR CHEMISTRY 232  
5
CH 233  
GENERAL CHEMISTRY  
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& CH 263  
and *LABORATORY FOR CHEMISTRY 233  
5
CH 331  
ORGANIC CHEMISTRY  
12
& CH 332  
and ORGANIC CHEMISTRY  
& CH 337  
and ORGANIC CHEMISTRY LABORATORY  
7
BB 450  
GENERAL BIOCHEMISTRY  
and GENERAL BIOCHEMISTRY  
7

Biology and Society
Select one BCC course from the following or see option:  
3-4

AEC 351  
*NATURAL RESOURCE ECONOMICS AND POLICY  
AEC 352/ECON 352  
*ENVIRONMENTAL ECONOMICS AND POLICY  
BB 331  
*INTRODUCTION TO MOLECULAR BIOLOGY  
BB 332  
*MOLECULAR MEDICINE  
BI 175  
*GENOMES, IDENTITIES AND SOCIETIES  
BI 301  
*HUMAN IMPACTS ON ECOSYSTEMS  
BI 306  
*ENVIRONMENTAL ECOLOGY  
BI 345  
*INTRODUCTION TO EVOLUTION  
BI 347  
*OCEANS IN PERIL  
BI 348  
*HUMAN ECOLOGY  
BI 420  
*VIRUSES IN MODERN SOCIETY  
BOT 324  
*FUNGI IN SOCIETY  
FES 435/TOX 435  
*GENES AND CHEMICALS IN AGRICULTURE: VALUE AND RISK  
FW 350  
*ENDANGERED SPECIES, SOCIETY AND SUSTAINABILITY  
H 312  
HIV/AIDS AND STIS IN MODERN SOCIETY  
HSTS 416  
*HISTORY OF MEDICINE PRE-1800  
MB 330  
*DISEASE AND SOCIETY  
PHEL 435/REL 443  
*WORLD VIEWS AND ENVIRONMENTAL VALUES  
Z 349  
*BIODIVERSITY CAUSES, CONSEQUENCES, AND CONSERVATION

Organismal Biology
Select one course from the following or see option:  
3-5

BI 427  
PALEOBIOLOGY  
BOT 321  
PLANT SYSTEMATICS  
BOT 416  
AQUATIC BOTANY  
BOT 461  
MYCOLOGY  
Z 361  
INVERTEBRATE BIOLOGY  
& Z 362  
and INVERTEBRATE BIOLOGY LABORATORY  
Z 371  
VERTEBRATE BIOLOGY  
& Z 372  
and VERTEBRATE BIOLOGY LABORATORY  
Z 422  
COMPARATIVE/FUNCTIONAL VERTEBRATE ANATOMY  
Z 461  
MARINE AND ESTUARINE INVERTEBRATE ZOOLOGY  
(taught at Hatfield Marine Science Center)  
Z 477  
AQUATIC ENTOMOLOGY

Physiology
Select one course from the following or see option:  
3-5

BI 331  
ADVANCED HUMAN ANATOMY AND PHYSIOLOGY  
& BI 341  
and ADVANCED HUMAN ANATOMY AND PHYSIOLOGY  
& BI 332  
LABORATORY  
& BI 342  
and ADVANCED HUMAN ANATOMY AND PHYSIOLOGY  
and ADVANCED HUMAN ANATOMY AND PHYSIOLOGY LABORATORY  
BOT 331  
PLANT PHYSIOLOGY  
BOT 488  
ENVIRONMENTAL PHYSIOLOGY OF PLANTS  
Z 423  
ENVIRONMENTAL PHYSIOLOGY  
Z 425  
EMBRYOLOGY AND DEVELOPMENT  
Z 431  
VERTEBRATE PHYSIOLOGY I

Writing Intensive Course (WIC)
Select one course from the following or see option:  
3-4

BI 319  
*THEORY, PRACTICE AND DISCOURSE IN THE LIFE SCIENCES  
BI 371  
*ECOLOGICAL METHODS
Major Code: 509

Biology Undergraduate Major (BS, HBS)

Experience Learning or Integrative Biology Elective
Select one of the following two tracks or an option:

Track I Integrative Biology Course
Select any combination of three credits from the following:

- BI 309  TEACHING PRACTICUM (by approval)
- BI 401  RESEARCH AND SCHOLARSHIP (by approval)
- BI 406  PROJECTS: CURATORIAL ASSISTANT (by approval)
- BI 409  ADVANCED TEACHING PRACTICUM (by approval)
- BI 410  INTERNSHIP (by approval)

OSU international internships (INTL credits) by approval

Bacc Core

- CH 231  GENERAL CHEMISTRY
- & CH 261  *LABORATORY FOR CHEMISTRY 231
- MTH 111  *COLLEGE ALGEBRA
- or MTH 112  *ELEMENTARY FUNCTIONS

Two Bacc Core courses

Total credits required for graduation 180

- Baccalaureate Core Course (BCC)
- Writing Intensive Course (WIC)

Alternative series is ST 351, ST 411 and ST 412

Biology majors are required to take BI 498, a comprehensive, two-hour Biology Major Field Test (http://ib.oregonstate.edu/advising/MFT-info/), in their final OSU term (or spring term if they will graduate in summer) in order to graduate

Declaring an option will alter the elective categories below, and all options automatically clear the upper-division science electives requirement. See the individual options or MyDegrees for details.

Biology and Society electives also count as BCC

BI 450 (taught at Hatfield Marine Science Center) is by application only and may count for other major requirements

**Biology - TRACK I**

**First Year**

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**Third Year**

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Biology Undergraduate Major (BS, HBS)

First Year

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Select one of the following:

- Biology and Society
- Organismal Biology
- Physiology
- Writing Intensive Course

Bacc Core

| Credits | 3 |

Second Year

Fall

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Select one of the following:

- Biology and Society
- Organismal Biology
- Physiology
- Writing Intensive Course

Electives

| Credits | 4 |

Winter

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Bacc Core

| Credits | 3 |

Third Year

Fall

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Select one of the following:

- BI 311 | GENETICS |
- BB 314 | CELL AND MOLECULAR BIOLOGY |
- BI 370 | ECOLOGY |
- BI 445 | EVOLUTION |
- ST 351 | INTRODUCTION TO STATISTICAL METHODS |

Bacc Core

| Credits | 3 |

Winter

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Select one of the following:

- BI 311 | GENETICS |
- BB 314 | CELL AND MOLECULAR BIOLOGY |
### First Year

**Fall**

- **BI 197** or **BI 198**: Professional Development I: Health Professions or Professional Development I: Biology and Zoology **1**
- **BI 221**: Principles of Biology Cells **4**
- **CH 231** or **CH 261**: General Chemistry and *Laboratory for Chemistry 231 **5**
- **Bacc Core**: **3**

**Credits**: **14**

### Second Year

**Fall**

- **BI 311** or **BB 314**: Genetics or Cell and Molecular Biology **3-4**
- **BI 370**: Ecology **4**
- **BI 445**: Evolution **4**
- **CH 331**: Organic Chemistry **4**
- **MTH 252**: Integral Calculus or MTH 228 **4**
- **Bacc Core**: **3**

**Credits**: **15**

**Winter**

- **BI 222**: Principles of Biology Populations **4**
- **CH 233**: General Chemistry and *Laboratory for Chemistry 233 **5**
- **MTH 251**: Differential Calculus or *Calculus and Probability for the Life Sciences I **4**
- **Bacc Core**: **3**

**Credits**: **17**

### Third Year

**Fall**

- **BI 311**: Genetics **3-4**
- **BB 314**: Cell and Molecular Biology **4**
- **BI 370**: Ecology **4**
- **BI 445**: Evolution **4**
- **CH 332**: Organic Chemistry Laboratory **4**
- **ST 351**: Introduction to Statistical Methods **4**
- **Bacc Core**: **3**

**Credits**: **15**

**Spring**

- **BI 311**: Genetics **3-4**
- **BB 314**: Cell and Molecular Biology **4**
- **BI 370**: Ecology **4**
- **BI 445**: Evolution **4**
- **CH 337**: Organic Chemistry Laboratory **4**
- **ST 352**: Introduction to Statistical Methods **4**
- **Bacc Core**: **3**

**Credits**: **15**

### Fourth Year

**Fall**

- **BB 450**: General Biochemistry **4**
- **Select one of the following**: **3-4**
- **BI 311**: Genetics **3-4**
- **BI 370**: Ecology **4**
- **BI 445**: Evolution **4**
- **CH 337**: Organic Chemistry Laboratory **4**
- **ST 352**: Introduction to Statistical Methods **4**
- **Bacc Core**: **3**

**Credits**: **15**

**Spring**

- **BI 298**: Professional Development for Biologists II **1**
- **BI 223**: Principles of Biology Populations **4**
- **CH 233**: General Chemistry and *Laboratory for Chemistry 233 **5**
- **MTH 251**: Differential Calculus or *Calculus and Probability for the Life Sciences I **4**
- **Bacc Core**: **3**

**Credits**: **17**

### Total Credits

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