NATURAL SCIENCE

Associate in Arts in Natural Science

The Associate in Arts in Natural Science has three areas of emphasis: Biological Science; Physical Science; and Mathematics and Technology. Students may choose one of these emphases to earn a degree in Natural Science. These emphases will provide students with the knowledge and skills to succeed in a variety of science or technological careers. Graduates with an Associate in Arts in Natural Science will develop a strong foundation in the life sciences, physical sciences, and mathematics. Furthermore, the theoretical knowledge and laboratory skills acquired by students in these programs will also enhance their success with obtaining entry-level jobs that require two years of college-level science and math.

It is imperative that students entering Ohlone’s Associate in Arts in Natural Science meet with a counselor at the start of their academic work. Counselors will assist students in preparing a comprehensive Student Education Plan that will prepare them to pursue their academic goals.

Requirements for Associate in Arts Degree:

a) Complete Major Field courses with a grade of C or better.
b) Complete a minimum of twenty transferable units selected from one of the areas of emphasis, including a minimum of twelve units in the same department and an additional eight units from any of the courses within the emphasis.
c) Complete Ohlone College General Education (Plan A), CSU GE (Plan B), or IGETC (Plan C) requirements. These requirements are specified in the Ohlone College catalog. Students who do not intend to transfer may complete Ohlone College General Education; students who intend to transfer may complete either CSU GE or IGETC. Counselors will advise students on the general education plan that best prepares them for pursuing an associate degree and/or transfer.
d) Complete at least 60 degree-applicable units with a 2.0 grade point average.
e) Complete at least 12 units at Ohlone College.
f) Complete at least 50% of the Major Field courses at Ohlone College.

Student Learning Outcomes
1. Gain knowledge and skills to succeed in a variety of science or technological careers.
2. Gain knowledge and skills to succeed in science majors at a baccalaureate university.

MAJOR FIELD

Biological Science Emphasis

This emphasis will enable students to develop a strong foundation in the life sciences. Furthermore, the theoretical knowledge and laboratory skills acquired by students in this emphasis will also enhance their success with obtaining entry-level jobs that require two years of college-level life science and laboratory skills.

Complete a minimum of twelve units from the following Biology courses and an additional eight units from any of the remaining courses within this emphasis.
ANTH-101 Physical Anthropology 4
ANTH-108 Introduction to Forensic Anthropology 3
BIOL-101A Principles of Biology - Molecular and Cellular Biology 5
BIOL-101B Principles of Biology - Organisms and Systems 5
BIOL-103A Human Anatomy and Physiology 4
BIOL-103B Human Anatomy and Physiology 4
BIOL-104 Basic Human Anatomy and Physiology 4
BIOL-105 Heredity, Evolution, and Society 3
BIOL-106 Microbiology 5
BIOL-109 Biology of Sexual Reproduction 3
BIOL-130 Essential Biology 4
BIOL-141 Marine Biology 3
BIOT-105 Introduction to Cell and Molecular Biology 4
BIOT-114 Introduction to Plant Biology 3
ENVS-108 Introduction to the Environment 3
ENVS-142 Environmental Biology 4

Total Required Units: 20

Mathematics and Technology Emphasis

This emphasis will enable students to develop a strong foundation in mathematics and technology. Furthermore, the theoretical knowledge and laboratory skills acquired by students in this emphasis will also enhance their success with obtaining entry-level jobs that require two years of college-level mathematics and technology courses. Courses prepare students for technical careers such as in information technology, systems administration, and networking.

Complete a minimum of twelve units in the same department, a minimum of three units in Mathematics, and a minimum of three units in technology (CS, CNET, ENGI, or MM).

CNET-105 IT Essentials (CompTIA A+) 4
CNET-155A Introduction to Networks (CCNA1) 3
CNET-155B Routing and Switching Essentials 3
CNET-170 Network Security (Security+) 4
CS-101 Introduction to Computers and Information Technology 3
CS-102 Introduction to Computer Programming Using C++ 3
CS-162 XHTML 4
CS-178 XML 3
ENGI-111 Programming and Problem-Solving in MATLAB 3
ENGI-114 How Technology Works 4
ENGI-135 Introduction to Robotics and Automated Systems 4
MATH-101A Calculus with Analytic Geometry 5
MATH-101B Calculus with Analytic Geometry 5
MATH-101C Calculus with Analytic Geometry 5
MATH-103 Introduction to Linear Algebra 3
MATH-104 Differential Equations 5
MATH-159 Introduction to Statistics 5
MATH-167 Calculus for Business and Social Science 5
MATH-181 Trigonometry 3
MATH-188 Pre-Calculus 5
MM-105 Web Site Design 4

Total Required Units: 20
**Physical Science Emphasis**

This emphasis will enable students to develop a strong foundation in the physical sciences. Furthermore, the theoretical knowledge and laboratory skills acquired by students in this emphasis will also enhance their success with obtaining entry-level jobs that require two years of college-level physical science and laboratory skills.

Complete a minimum of twelve units from either the following Chemistry, Geology, or Physics courses and an additional eight units from any of the remaining courses within this emphasis.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ASTR-101A</td>
<td>General Astronomy of the Solar System</td>
<td>3</td>
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<tr>
<td>ASTR-101B</td>
<td>General Astronomy Beyond the Solar System</td>
<td>3</td>
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<tr>
<td>ASTR-102</td>
<td>General Astronomy Lab</td>
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<tr>
<td>CHEM-101A</td>
<td>General Chemistry</td>
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<tr>
<td>CHEM-101B</td>
<td>General Chemistry</td>
<td>5</td>
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<tr>
<td>CHEM-102</td>
<td>Preparation for General Chemistry</td>
<td>4</td>
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<tr>
<td>CHEM-108</td>
<td>Survey of Chemistry</td>
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<tr>
<td>CHEM-109</td>
<td>Biochemistry for Health Science and Biotechnology</td>
<td>4</td>
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<tr>
<td>CHEM-112A</td>
<td>Organic Chemistry</td>
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<tr>
<td>CHEM-112B</td>
<td>Organic Chemistry</td>
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<tr>
<td>GEOG-101</td>
<td>Physical Geography</td>
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<td>GEOL-101</td>
<td>Introduction to Geology</td>
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<td>GEOL-102</td>
<td>Introduction to Oceanography</td>
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<tr>
<td>GEOL-103</td>
<td>Paleontology and Dinosaurs</td>
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<td>GEOL-103L</td>
<td>Earth History and Paleontology Laboratory</td>
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<td>GEOL-104</td>
<td>The Changing Earth: Historical Geology</td>
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<td>PHYS-108</td>
<td>Survey of Physics</td>
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<td>PHYS-120</td>
<td>Introduction to Physics I</td>
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<td>Introduction to Physics I – Calculus Supplement</td>
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<td>PHYS-121</td>
<td>Introduction to Physics II</td>
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<td>PHYS-140</td>
<td>Mechanics</td>
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<td>PHYS-141</td>
<td>Electricity and Magnetism</td>
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<tr>
<td>PHYS-142</td>
<td>Optics, Heat, and Modern Physics</td>
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