



#### BS DEGREE - CODE #2564

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The Bachelor of Science in health sciences program is a rigorous four-year baccalaureate degree in biological sciences designed to satisfy requirements for students entering health care professions or graduate-level biomedical research. Students in the program will be exposed to a rich offering of liberal arts courses and will advance from basic biology, chemistry, and physics courses to upper-level courses in biology, chemistry, health care, and research. The program further provides opportunities to select from a wide range of health-related technical electives to enhance and broaden the student's expertise. These will prepare the graduate for working with future colleagues from the health care professions and the diverse population that will require their services. In addition, this program will prepare the graduate to seek transfer options to graduate-level or initial professional degree programs.

#### ADVANTAGES

- Students will build a solid foundation in biology and chemistry courses.
- Students will be able to internally and seamlessly transfer from Alfred State's biological science (AAS) degree.
- Students will further advance knowledge and skills in biology, chemistry, health care, and research through courses, including microbiology, genetics, bio-techniques, molecular and cellular biology, biochemistry, culture of health care, ethical issues in health care, and research methods.
- Students will have the opportunity to enhance and broaden their training by selecting from a list of approved health-related technical electives such as advanced pharmacology, complementary and alternative medicine, genomics, instrumental analysis, medical anthropology, and more.
- Students will conceptualize and implement their knowledge and skills through a directed research experience or professional internship.

#### OCCUPATIONAL OPPORTUNITIES

- Laboratory assistant
- Pharmaceutical sales representative
- Environmental health safety officer
- Food scientist
- Biomedical researcher
- Public health worker

#### FUTURE EDUCATIONAL OPPORTUNITIES

- Medicine
- Physician assistant
- Dentistry
- Optometry
- Osteopathy
- Pharmacy
- Audiology
- Physical therapy
- Occupational therapy
- Chiropractic
- Clinical psychology
- Graduate level biology, chemistry, or biomedical science

#### LECOM EARLY ACCEPTANCE PROGRAM

Alfred State's health sciences program has an affiliation agreement with Lake Erie College of Osteopathic Medicine (LECOM).

As a high school senior you can apply to both Alfred State College and LECOM's Early acceptance Program (EAP) for the College of Osteopathic Medicine or the College of Pharmacy.

Current Alfred State health science students with at least two years remaining can also apply to LECOM's EAP.

Through this 4+4 program, students who earn a BS in health sciences at Alfred State College will continue their education at LECOM. For more information visit <https://lecom.edu/academics/early-acceptance-program/>.

#### EMPLOYMENT STATISTICS

Employment and continuing education rate of 100 percent – 60 percent are employed; 40 percent continued their education.

#### RELATED PROGRAMS

[Biological Science](#)  
[Forensic Science Technology](#)

#### INTERNSHIP OPPORTUNITIES

- Academic or industrial research laboratory
- Health care or clinical laboratory
- Pharmacy
- Health care practitioner's office

#### ENTRANCE REQUIREMENTS/RECOMMENDATIONS

Specific high school course requirements and recommendations are:

Required: Algebra, Geometry, Algebra 2, Biology, Chemistry

Recommended: Physics

#### REQUIRED COURSE PREREQUISITES

If students do not place into MATH 1033 College Algebra, MATH 1084 Calculus I, MATH 1323 Quantitative Reasoning, MATH 1034 College Algebra of Functions, MATH 1054 Precalculus, or MATH 2124 Statistical Methods & Analysis, then MATH 1014 Algebra Concepts is a required prerequisite for completion of the major.

If students do not place into PHYS 1024 General Physics I or PHYS 1044 College Physics I, then PHYS 1014 Introductory Physics is a required prerequisite for completion of this major.

#### TECHNICAL STANDARDS

It is essential that students in this degree program are able to fully and safely participate, with or without reasonable accommodation, in all classroom, laboratory, field, internship, and research experiences required for completion of the program. Students in this degree program should be able to:

- Function in a safe manner, not placing themselves, faculty, staff, or other students in jeopardy.
- Appropriately and safely use standard laboratory equipment, materials, and instrumentation to include possession of fine motor skills and mobility.
- Make sensory visual and auditory observations during, and interpret data from, all required laboratory assignments.
- Communicate effectively, both orally and in writing.

In addition, this degree program requires students to complete either an off-campus internship experience or a research project. Students in this degree program are expected to meet the following professional standards:

- Maintain confidentiality in professional workplace settings.
- Maintain professional composure at all times.

Be advised that a prior felony conviction may impede a student's ability to participate in an internship experience.

**REQUIRED EQUIPMENT**

A tier 1 laptop computer is required for students entering this degree program. Laptop specifications are available at [www.alfredstate.edu/required-laptops](http://www.alfredstate.edu/required-laptops).

**OFFICE OF ACCESSIBILITY SERVICES**

Students who believe they need a reasonable accommodation to properly participate in this program may contact Melanie Ryan in the Office of Accessibility Services. This office may be contacted by email at [oas@alfredstate.edu](mailto:oas@alfredstate.edu) or by phone at 607-587-4506. Please keep in mind that some accommodations may take time to implement, so students seeking accommodations are encouraged to contact OAS as early as possible.

**HEALTH SCIENCES – BS DEGREE**
**TYPICAL EIGHT-SEMESTER PROGRAM**

| Course         | Credits | Description                         | Credits | Course                                  | Credits | Description                     | Credits |
|----------------|---------|-------------------------------------|---------|---|---------|---------------------------------|---------|
| <b>First</b>   |         |                                     |         |   |         |                                 |         |
| BIOL 1104      | 4       | General Biology I                   | 4       | XXXX                                    | xxx3    | Technical Elective Upper        | 3       |
| CHEM 1984      | 4       | Chemical Principles I               | 4       | XXXX                                    | xxx3    | Technical Elective Upper        | 3       |
| MATH xxx3      | 3       | Math Elective (MATH 1033 or higher) | 3       | BIOL 5013                               | 3       | Biotechniques                   | 3       |
| COMP 1503      | 3       | Writing Studies                     | 3       | HLSC 8703                               | 3       | Senior Research Project         | 3       |
| HLSC 1101      | 1       | Introduction to Health Science      | 1       |   |         | OR                              |         |
|                |         | OR                                  |         | HLSC 8713                               | 3       | Prof Internship in Health Sci   | 3       |
| BIOL 1101      | 1       | Topics in General Biology           | 1       |   |         |                                 | 15      |
|                |         |                                     | 15      | <b>LOWER LEVEL TECHNICAL ELECTIVES:</b> |         |                                 |         |
| <b>Second</b>  |         |                                     |         |   |         |                                 |         |
| BIOL 2204      | 4       | General Biology II                  | 4       | BIOL 1013                               | 3       | Essentials of Exercise Physiol  | 3       |
| CHEM 2984      | 4       | Chemical Principles II              | 4       | BIOL 1113                               | 3       | Biology of Human Sexuality      | 3       |
| GLST 2113      | 3       | Global & Diverse Perspectives       | 3       | BIOL 1313                               | 3       | Nutrition                       | 3       |
| SPCH 1083      | 3       | Public Speaking                     | 3       | BIOL 1404                               | 4       | Anatomy & Physiology I          | 4       |
|                |         |                                     | 14      | BIOL 2504                               | 4       | Anatomy & Physiology II         | 4       |
| <b>Third</b>   |         |                                     |         |   |         |                                 |         |
| BIOL 5254      | 4       | Principles of Microbiology          | 4       | BIOL 2633                               | 3       | Histotechniques                 | 3       |
| CHEM 3514      | 4       | Organic Chemistry I                 | 4       | BIOL 2803                               | 3       | Environmental Science           | 3       |
| PSYC 1013      | 3       | General Psychology                  | 3       | BIOL 4403                               | 3       | Pathophysiology                 | 3       |
| XXXX xxx3      | 3       | Open Elective                       | 3       | ENVR 4413                               | 3       | Environmental Law               | 3       |
| LITR xxx3      | 3       | Literature Elective                 | 3       | ENVR 4424                               | 4       | Environmntl Chem & Microbiology | 4       |
|                |         |                                     | 17      | HLSC 4900                               | 1       | Directed Study                  | 1       |
| <b>Fourth</b>  |         |                                     |         |   |         |                                 |         |
| BIOL 6534      | 4       | Genetics                            | 4       | MATH 1084                               | 4       | Calculus I                      | 4       |
| CHEM 4524      | 4       | Organic Chemistry II                | 4       | MATH 2094                               | 4       | Calculus II                     | 4       |
| MATH 2124      | 4       | Statistical Methods & Analysis      | 4       | MEDR 1132                               | 2       | Essentials of Pharmacology      | 2       |
| XXXX xxx3      | 3       | General Education Elective          | 3       | MEDR 1133                               | 3       | Medical Terminology             | 3       |
| HLSC 2111      | 1       | Health Sciences Seminar             | 1       | PSYC 1023                               | 3       | Human Development               | 3       |
|                |         | OR                                  |         | PSYC 2093                               | 3       | Abnormal Psychology             | 3       |
| BIOL 2111      | 1       | Biological Sciences Seminar         | 1       | SOCI 1233                               | 3       | Gerontology                     | 3       |
|                |         |                                     | 16      | <b>UPPER LEVEL TECHNICAL ELECTIVES:</b> |         |                                 |         |
| <b>Fifth</b>   |         |                                     |         |   |         |                                 |         |
| CHEM 7784      | 4       | Biochemistry                        | 4       | ANTH 5333                               | 3       | Medical Anthropology            | 3       |
| HLTH 5233      | 3       | The Culture of Healthcare           | 3       | BIOL 5003                               | 3       | Genomics                        | 3       |
| PHYS 1044      | 4       | College Physics I                   | 4       | BIOL 5104                               | 4       | Kinesiology                     | 4       |
| BIOL 7723      | 3       | Research Methods in Health Sci      | 3       | BIOL 5503                               | 3       | Virology                        | 3       |
| COMP 5703      | 3       | Technical Writing II                | 3       | BIOL 6113                               | 3       | Diet and Disease                | 3       |
|                |         |                                     | 17      | BIOL 6403                               | 3       | Advanced Pathophysiology        | 3       |
| <b>Sixth</b>   |         |                                     |         |   |         |                                 |         |
| NURS 5003      | 3       | Ethical Issues in Health Care       | 3       | CHEM 5414                               | 4       | Analytical Principles           | 4       |
| PHYS 2044      | 4       | College Physics II                  | 4       | CHEM 6614                               | 4       | Instrumental Analysis           | 4       |
| XXXX xxx3      | 3       | Open Elective                       | 3       | CHEM 6854                               | 4       | Physical Chemistry              | 4       |
| XXXX xxx3      | 3       | Open Elective                       | 3       | FRSC 7214                               | 4       | Forensic Chemistry              | 4       |
| XXXX xxx3      | 3       | Technical Elective Upper            | 3       | FRSC 8214                               | 4       | Forensic Biology                | 4       |
|                |         |                                     | 16      | HLTH 5113                               | 3       | Complementary & Altv Medicine   | 3       |
| <b>Seventh</b> |         |                                     |         |   |         |                                 |         |
| BIOL 6003      | 3       | Molecular and Cell Biology          | 3       | HLTH 5203                               | 3       | End of Life Dilemmas            | 3       |
| XXXX xxx3      | 3       | Open Elective                       | 3       | HLSC 5900                               | 1       | Directed Study                  | 1       |
| XXXX xxx3      | 3       | Technical Elective                  | 3       | MATH 6104                               | 4       | Multivariate & Vector Calculus  | 4       |
| XXXX xxx3      | 3       | Technical Elective Upper            | 3       | MATH 6114                               | 4       | Differential Equations          | 4       |
| XXXX xxx3      | 3       | Technical Elective                  | 3       | NURS 6403                               | 3       | Adv Phrmclgy, Herbal Ther, Nut  | 3       |
|                |         |                                     | 15      | NURS 7033                               | 3       | Healthy Aging in Rural Areas    | 3       |
| <b>Eighth</b>  |         |                                     |         |   |         |                                 |         |
| XXXX xxx3      | 3       | Open Elective Upper                 | 3       | NURS 8003                               | 3       | Informtcs&Tech App in Hlthcare  | 3       |
|                |         |                                     |         | PSYC 5093                               | 3       | Health Psychology               | 3       |
|                |         |                                     |         | PSYC 7003                               | 3       | Working w/Diverse Populations   | 3       |

**GRADUATION REQUIREMENTS**

- 124 total semester credit hours
- Completion of at least one course from seven of the 10 SUNY Gen Ed categories.
- Minimum of 60 semester credit hours of Liberal Arts & Science credit hours.
- 48 upper-division credit hours
- 42 upper-division credit hours in the major
- Minimum of 30 upper-division credit hours in residence

- 3 credit hours of research or internship
- 2.0 cumulative grade point average
- Grade of "C" or higher in courses with BIOL, CHEM, HLSC, and HLTH prefixes
- Approval of department faculty

All laboratory-based courses for this academic program must be completed in an in-person format. Laboratory-based courses in the online format will not fulfill degree requirements.