

SCIENCE & MATH

The Division of Science and Mathematics, located in Sullivan Hall, offers associate degrees (AS) that prepare graduates for transfer as juniors into bachelor's degree programs at universities. Students can major in the following programs.

- Physical Science (AS)
- Mathematics with an available teacher certification track (AS)
- Life Science, with a variety of program tracks (AS)
 - Biology
 - Pre-Professional: (Medical, Dental, Nursing, Veterinary Medicine, Pharmacy, Physical Therapy, etc.)
- Environmental Science

Division of Science and Mathematics

Life Science (A.S.)

The A.S. in Life Science is designed to outline the freshman–sophomore years of study for students who plan to transfer to universities in a variety of programs in the life sciences. The major offers several advising tracks for students:

- Biology, Environmental Science
- Pre–Professional (Medical, Dental, Nursing, Veterinary Medicine*, Pharmacy**, Physical Therapy, etc.)

The Pre–professional studies track is actually more of an advising track than a major. At the university–level, pre–professional students normally choose a specific major such as biology or chemistry. Students planning to seek certification as secondary school science teachers should see the note about foreign language in category VII below.

* Pre–vet is also offered by the Division of Agriculture

** Pre-Pharmacy is also offered under Physical Science

Orientation (1 hour)	Course	Note
I. College Success Skills (1 hour)	OLS 1111 – Orientation and Library Science	This course should be taken during the student’s first semester.
General Education (40 hours)	Courses	Notes
II. Social Sciences and History (9 hours)	A. POL SC 1113 – American Federal Government B. American History: Take <i>one</i> of the following: HIST 1483 – American History to 1877 HIST 1493 – American History since 1877 C. PSY 1113 – Introduction to Psychology	
III. Mathematics (3 hours)	MATH 1513 – College Algebra* Higher math is encouraged if qualified. **	*PREREQUISITE: exemption from or exit from Developmental Math Qualified students are encouraged to take MATH 1613. **Requires approval of advisor.
IV. Natural Sciences (9 hours)	A. Life Science: ZOO 1114 –General Zoology* B. CHEM 1315 –General College Chemistry I ** #	PREREQUISITE for all science courses: exemption from or exit from Developmental Reading *Recommended for students planning careers in health/medical fields. # PREREQUISITE: Math 1513 **PREREQUISITE: exemption from or exit from Developmental Math
V. Communications (12 hours)	A. Take <i>both</i> of the following: ENGL 1113 – Freshman Composition I* ENGL 1213 – Freshman Composition II B. Take <i>one</i> of the following:** SPCH 1113 – Fundamentals of Speech SPCH 2233 – Business & Professional Speaking C. CIS 1113 – Computer Applications	*PREREQUISITE: exemption from or exit from Developmental English. **Select in accordance with the requirements of the intended transfer university
VI. Humanities (6 hours)	A. Take <i>one</i> of the following: HUMAN 1133 – Music in Life HUMAN 1143 – Art in Life HUMAN 1153 — Survey of World Religions HUMAN 2103 – Theatre Appreciation HUMAN 2113 – Global Humanities I HUMAN 2213 – Global Humanities II HUMAN 2223 – Intro to Global Philosophy	PREREQUISITE for all courses with a HUMAN prefix: exemption from or exit from Developmental Reading All HUMAN courses in Category VI.A have a “global perspective.”

	<p>HUMAN 2233 – World Literature I HUMAN 2243 – World Literature II</p> <p>B. Take <i>one</i> of the following: Another HUMAN course from category VI.A</p> <p style="text-align: center;">or</p> <p>HIST 2413 – Early World Civilization HIST 2423 – Modern World Civilization ENGL 2413 – Introduction to Literature ENGL 2433 – World Literature I ENGL 2443 – World Literature II ENGL 2543 – English Literature I ENGL 2653 – English Literature II ENGL 2773 – American Literature I ENGL 2883 – American Literature II REL ED 2103 – Intro to Old Testament REL ED 2203 – Intro to New Testament</p>	
<p>VII. General Education Elective (0–3 hours in order to equal at least 40 in general education.)</p>	<p><u>Choose from the following:</u></p> <p>A. Extra general education hours from the major field can be applied here to total 40.</p> <p>B. <u>Take a course from the following:</u> Any course from CATEGORIES II or VI above that is not being counted in that category. SPAN 1115* or SPCH 1403–ASL (NOTE: some universities do not accept ASL as Gen Ed) HIST 1103 – History of Oklahoma HIST 2723 – History of the American Indian MCOMM 1113 – Intro to Mass Communication Other PSY courses (PSY 1113 is prerequisite.) Other SOC courses (SOC 1113 is prerequisite.) HPER 1113 – Health Concepts HPER 2102 – First Aid HPER 1102 – School and Community Health Other Math classes with a prerequisite of MATH 1513</p>	<p>*TEACHER CERTIFICATION. A student seeking Teacher Certification in Life Science Education should take SPAN 1115 in this category. He or she should then take SPAN 1215 as an additional elective beyond the minimum required for the A.S. (unless the student has demonstrated language competency by alternate means.)</p>
Major Fields	Courses	Notes
<p>Courses required for track in General Life Science (21–25 hours)</p> <p>Select FIVE courses appropriate to university plans in consultation with an advisor.</p> <p>Note: you <u>cannot</u> meet this category with four five–hour courses; you must take five different courses.</p>	<p>BIOL 2114 – Human Anatomy BIOL 2155 – Microbiology BIOL 2214 – Human Physiology (Science emphasis) BIOL 2224 – General Entomology BOT 1114 – General Botany CHEM 1415 – General College Chemistry II CHEM 2105 – Organic Chemistry I CHEM 2205 – Organic Chemistry II MATH 1613 – Trigonometry MATH 2233 – Elementary Statistics MATH 2235 – Calculus I NURS 2123 – Medical Terminology NUTRIT 1203 – Nutrition PHY 1114 – General Physics I PHY 1214 – General Physics II ZOO 1114 – General Zoology ZOO 1414 – Introductory Cellular Physiology</p>	<p>Reminder: CHEM 1315 General Chemistry I and ZOO 1114–General Zoology is required as general education in Category IV.</p> <p>Pay careful attention to prerequisites for major field courses.</p>

<p>Courses required for track in Biology (21)</p> <p>Education: Additional Requirements: #</p>	<p>BOT 1114 – General Botany PHY 1114 – General Physics I PHY 1214 – General Physics II BIOL 2114 – Human Anatomy CHEM 1415 – General College Chemistry II *</p> <p>SPAN 1115 and SPAN 1125 ** (Elementary Spanish I and II)</p>	<p>*Prerequisite: Chem. 1315</p> <p>**Additional Requirements</p> <p># Biology majors must take Span 1115 and 1215.</p>
<p>Courses required for track in Pre-Communication Sciences & Disorders (23)</p>	<p>NURS 2123 – Medical Terminology PHY 1114 – General Physics I BIOL 2155 – Intro to Microbiology BIOL 2114 – Human Anatomy BIOL 2214 – Human Physiology * Math 1613 – Trigonometry</p>	<p>* Prerequisite: Human Anatomy</p>
<p>Courses required for Environmental Science Option: Take 5 or 6 courses (21 to 25 hours)</p>	<p>AGRON 2124 – Fundamentals of Soil Science BIOL 2103 – Environmental Science I ** BIOL 2104 – Environmental Science II ** BIOL 2155 – Microbiology BIOL 2224 – General Entomology BOT 1114 - General Botany * CHEM 1415 - General Chemistry II * CHEM 2105 – Organic Chemistry I PHY 1114 – General Physics I PHY 1214 – General Physics II ZOO 1114 – General Zoology</p>	<p>Environmental science–related majors vary widely at universities. The student should check carefully to make sure that the correct courses are chosen for the university he or she plan to attend.</p> <p>*These courses are especially likely to be required in environmental science at universities.</p> <p>** Most universities do not have two general Environmental Science courses.</p> <p>Pay careful attention to prerequisites for major field courses.</p>
<p>Courses required for track in Pre-Nursing (BSN) (25)</p>	<p>NUTRIT 1203 – Nutrition PSY 2103 – Developmental Psychology NURS 2123 – Medical Terminology BIOL 2114 – Human Anatomy BIOL 2214 – Human Physiology * MATH 2233 – Elementary Statistics BIOL 2155 – Microbiology</p>	<p>* Prerequisite: Human Anatomy</p>
<p>Courses required for track in Pre-Nutritional Sciences (27)</p>	<p>CHEM 1415 – General College Chemistry II * NUTRIT 1203 – Nutrition SOC 1113 – Intro to Sociology BIOL 2155 – Intro to Microbiology BIOL 2114 – Human Anatomy BIOL 2214 – Human Physiology * Math 1613 – Trigonometry</p>	<p>*Prerequisite: Chem 1315</p> <p>* Prerequisite: Human Anatomy</p>

Courses required for track in Pre-Pharmacy (32)	CHEM 1415 – General College Chemistry II * BIOL 2155 – Microbiology PHY 1114 – General Physics I CHEM 2105 – Organic Chemistry I ** CHEM 2205 – Organic Chemistry II *** Math 1613 – Trigonometry **** Math 2235 – Calculus *****	*Prerequisite: Chem 1315 ** Prerequisite: Chem 1415 ***Prerequisite: Chem 2105 ****Prerequisite: Math 1513 *****Prerequisite: Math 1613
Courses required for track in Pre-Physical & Occupational Therapy (25)	PHY 1114 – General Physics I PHY 1214 – General Physics II PSY 2103 – Developmental Psychology NURS 2123 – Medical Terminology BIOL 2114 – Human Anatomy BIOL 2214 – Human Physiology * Math 1613 – Trigonometry	* Prerequisite: Human Anatomy
Courses required for track in Pre-Radiologic Technology (26)	NURS 2123 – Medical Terminology PHY 1114 – General Physics I BIOL 2155 – Microbiology SOC 1113 – Intro to Sociology BIOL 2114 – Human Anatomy BIOL 2214 – Human Physiology * Math 1613 – Trigonometry	* Prerequisite: Human Anatomy
Courses required for track in Pre-Veterinary Medicine (22)	CHEM 1415 – General College Chemistry II * BIOL 2155 – Microbiology PHY 1114 – General Physics I PHY 1214 – General Physics II BIOL 1114 – (Honors)-Biology I	*Prerequisite: Chem 1315
Total for A.S. in Life Sciences	Minimum of 62 to 73 Credit Hours (The minimum credit hours will depend on the major track being pursued)	Many students will, in fact, complete more than the minimum of hours because of the varied hours for science and math courses and general education electives.

Physical Education–Health–Wellness. Some universities have a requirement for physical education or health or wellness in their general education and/or teacher education curricula. Students should consult their advisors and the catalogs of the universities to which they intend to transfer to determine appropriate courses, if any, to take at Eastern.

Division of Science and Mathematics

Mathematics (A.S.)

The A.S. in Mathematics is designed to provide the freshman and sophomore years of study for students who plan to transfer to a university to major in math or related fields. Students planning to seek certification as secondary school mathematics teachers should see the note about foreign language in category VII below.

Orientation (1 hour)	Course	Note
I. College Success Skills (1 hour)	OLS 1111 – Orientation and Library Science	This course should be taken during the student's first semester.
General Education (40 hours)	Courses	Notes
II. Social Sciences and History (9 hours)	A. POL SC 1113 – American Federal Government B. American History: Take one of the following: HIST 1483 – American History to 1877 HIST 1493 – American History since 1877 C. Other Social Sciences: Take one of the following: PSY 1113 – Introduction to Psychology SOC 1113 – Introduction to Sociology GEOG 2723 – Regional World Geography ECON 2113 – Intro to Macroeconomics ECON 2123 – Intro to Microeconomics	
III. Mathematics (3 hours)	MATH 1513 – College Algebra* Higher MATH encouraged if qualified.*	*PREREQUISITE: exemption from or exit from Developmental Math **Requires advisor approval
IV. Natural Sciences (7–9 hours)	A. Life Science: Take one of the following: BIOL 1114 – General Biology BOT 1114 – General Botany BIOL 2103 – Environmental Sciences I ZOO 1114 – General Zoology B. Physical Science: Take one of the following: CHEM 1315 – General College Chemistry I* PHY SC 1114 – Physical Science PHY SC 1124 – Elementary Astronomy PHY SC 1214 – Earth Science PHY 1114 – General Physics I	PREREQUISITE for all science courses: exemption from or exit from Developmental Reading *PREREQUISITE: exemption from or exit from Developmental Math
V. Communications (12 hours)	A. Take both of the following: ENGL 1113 – Freshman Composition I* ENGL 1213 – Freshman Composition II B. Take one of the following:** SPCH 1113 – Fundamentals of Speech SPCH 2233 – Business & Professional Speaking C. CIS 1113 – Computer Applications	*PREREQUISITE: exemption from or exit from Developmental English. **Select in accordance with the requirements of the intended transfer university
VI. Humanities (6 hours)	A. Take one of the following: HUMAN 1133 – Music in Life HUMAN 1143 – Art in Life HUMAN 2103 – Theatre Appreciation HUMAN 1153 — Survey of World Religions HUMAN 2113 – Global Humanities I HUMAN 2213 – Global Humanities II HUMAN 2223 – Intro to Global Philosophy HUMAN 2233 – World Literature I HUMAN 2243 – World Literature II	PREREQUISITE for all courses with a HUMAN prefix exemption from or exit from Developmental Reading. All HUMAN courses in Category VI.A have a “global perspective.”

	<p>B. Take <i>one</i> of the following: Another HUMAN course from category VI.A or HIST 2413 – Early World Civilization HIST 2423 – Modern World Civilization ENGL 2413 – Introduction to Literature ENGL 2433 – World Literature I ENGL 2443 – World Literature II ENGL 2543 – English Literature I ENGL 2653 – English Literature II ENGL 2773 – American Literature I ENGL 2883 – American Literature II REL ED 2103 – Intro to Old Testament REL ED 2203 – Intro to New Testament</p>	
<p>VII. General Education Elective (0–3 hours in order to equal at least 40 in general education.)</p>	<p><u>Choose from the following:</u> A. Extra general education hours from the major field can be applied here to total 40. B. <u>Take a course from the following:</u> Any course from CATEGORIES II, IV, or VI above that is not being counted in that category. SPAN 1115* or SPCH 1403–ASL (NOTE: some universities do not accept ASL as Gen Ed) HIST 1103 – History of Oklahoma HIST 2723 – History of the American Indian MCOMM 1113 – Intro to Mass Communication Other PSY courses (PSY 1113 is prerequisite.) Other SOC courses (SOC 1113 is prerequisite.) HPER 1113 – Health Concepts HPER 2102 – First Aid HPER 1102 – School and Community Health Other Math classes with a prerequisite of MATH 1513</p>	<p>*TEACHER CERTIFICATION. A student seeking Teacher Certification in Math Education should take SPAN 1115 in this category. He or she should then take SPAN 1215 as an additional elective beyond the minimum required for the A.S. (unless the student has demonstrated language competency by alternate means.)</p>
<p>Major Field (24 hours)</p>	<p>Courses</p>	<p>Notes</p>
<p>Required Courses for the Math major (16 hours)</p>	<p>MATH 1613 – Trigonometry* MATH 2233 – Elementary Statistics MATH 2235 – Calculus I* MATH 2245 – Calculus II* MATH 2253 – Differential Equations MATH 2263 – College Geometry MATH 2343 – Calculus III</p>	<p>*These courses are strongly recommended because they are expected for the math major at most universities. The student should consult an advisor and the catalog of the intended transfer university.</p>
<p>Supporting Electives for the Math major (8 hours)</p>	<p>CHEM 1315 – General College Chemistry I CHEM 1415 – General College Chemistry II PHY 1114 – General Physics I PHY 1214 – General Physics II or PHY 2014 – Engineering Physics I PHY 2114 – Engineering Physics II Computer Science electives with advisor approval.</p>	<p>Check prerequisites carefully.</p>
<p>Total for A.S. in Mathematics</p>	<p>Minimum of 65 Credit Hours</p>	<p>Many students will, in fact, complete more than the minimum of 65 hours because of the varied hours for science and math courses and general education electives.</p>

Physical Education–Health–Wellness. Some universities have a requirement for physical education or health or wellness in their general education and/or teacher education curricula. Students should consult their advisors and the catalogs of the universities to which they intend to transfer to determine appropriate courses, if any, to take at Eastern.

Division of Science and Mathematics
Medical Laboratory Technology (A.A.S.)

The A.A.S. in Medical Laboratory Technology (MLT) is designed for students who wish to become certified medical laboratory technicians. The program includes 32 credit hours of general education and science courses taken during the first year and 40 credit hours of medical laboratory coursework and clinical practice taken during the second year. Students who desire to become candidates for the A.A.S. degree in Medical Laboratory Technology are required to make a formal application to the Director of the MLT Program. Formal approval by the MLT Program Director is required before a student can enroll in the second year medical laboratory coursework and clinical practice. Admission is highly competitive. GPA, ACT scores and grades in specific science courses are considered. An interview may be required.

Upon completion of the program, students will be able to sit for national examinations for certification as a medical laboratory technician.

Category	Courses	Notes
College Success Skills (1 hour)	OLS 1111 – Orientation and Library Science	This course should be taken during the student's first semester.
History & Government (6 hours)	A. POL SC 1113 – American Federal Government B. American History: Take one of the following: HIST 1483 – American History to 1877 HIST 1493 – American History since 1877	
Communications (6 hours)	A. Take both of the following: ENGL 1113 – Freshman Composition I* ENGL 1213 – Freshman Composition II	*PREREQUISITE: Exemption from or exit from Developmental English.
Major Field		
Supporting Sciences (12 hours)	BIOL 2114, Human Anatomy BIOL 2204, Human Physiology BIOL 2124, Intro to Microbiology CHEM 1104, Intro to Chemistry	
Medical Laboratory Technology Courses (40 hours)	MLT 1001, Intro to Med Lab MLT 1305, Hematology/Phlebotomy MLT 2114, Clinical Chemistry I MLT 2224, Clinical Microbiology MLT 2234, Clinical Practicum I MLT 2314, Immunology/Blood Banking MLT 2324, Clinical Chemistry II MLT 2424, Special Chemistry and Urinalysis MLT 2434, Clinical Practicum II MLT 2514, Clinical Practicum III MLT 2552, MLT Capstone	Choose electives in consultation with advisor.

Electives	Elective List	
Choose electives from the following list (3 hours)	CIS 1113, Computer Applications PSY 1113, Intro to Psychology	
Total for AAS in Medical Laboratory Technology	72 credit hours	Students may choose to take additional hours for career or personal interest.

Division of Science and Mathematics Physical Science (A.S.)

The A.S. in Physical Science is designed to provide the freshman–sophomore level courses for students who plan to transfer to universities in a variety of programs in the physical sciences. The major offers three tracks for students:

- Chemistry (NOTE: Chemistry is a common major for pre–medicine students.)
- Physics
- General Physical Science

Students planning to seek certification as secondary school science teachers should see the note about foreign language in category VII below.

Orientation (1 hour)	Course	Note
I. College Success Skills (1 hour)	OLS 1111 – Orientation and Library Science	This course should be taken during the student’s first semester.
General Education (40 hours)	Courses	Notes
II. Social Sciences and History (9 hours)	A. POL SC 1113 – American Federal Government B. American History: Take one of the following: HIST 1483 – American History to 1877 HIST 1493 – American History since 1877 C. Other Social Sciences: Take one of the following: PSY 1113 – Introduction to Psychology SOC 1113 – Introduction to Sociology GEOG 2723 – Regional World Geography ECON 2113 – Intro to Macroeconomics ECON 2123 – Intro to Microeconomics	
III. Mathematics (3 hours)	MATH 1513 – College Algebra* Higher math is encouraged if qualified. **	*PREREQUISITE: exemption from or exit from Developmental Math Qualified students are encouraged to start above MATH 1513. **Requires approval of advisor.
IV. Natural Sciences (7–9 hours)	A. Life Science: Take one of the following: BIOL 1114 – General Biology BOT 1114 – General Botany BIOL 2103 – Environmental Sciences I ZOO 1114 – General Zoology B. CHEM 1315 – General College Chemistry I*	PREREQUISITE for all science courses: exemption from or exit from Developmental Reading *Requires approval of advisor.

V. Communications (12 hours)	A. Take <i>both</i> of the following: ENGL 1113 – Freshman Composition I* ENGL 1213 – Freshman Composition II B. Take <i>one</i> of the following:** SPCH 1113 – Fundamentals of Speech SPCH 2233 – Business & Professional Speaking C. CIS 1113 – Computer Applications	*PREREQUISITE: exemption from or exit from Developmental Reading **Select in accordance with the requirements of the intended transfer university
VI. Humanities (6 hours)	A. Take <i>one</i> of the following: HUMAN 1133 – Music in Life HUMAN 1143 – Art in Life HUMAN 1153 — Survey of World Religions HUMAN 2103 – Theatre Appreciation HUMAN 2113 – Global Humanities I HUMAN 2213 – Global Humanities II HUMAN 2223 – Intro to Global Philosophy HUMAN 2233 – World Literature I HUMAN 2243 – World Literature II B. Take <i>one</i> of the following: Another HUMAN course from category VI.A or HIST 2413 – Early World Civilization HIST 2423 – Modern World Civilization ENGL 2413 – Introduction to Literature ENGL 2433 – World Literature I ENGL 2443 – World Literature II ENGL 2543 – English Literature I ENGL 2653 – English Literature II ENGL 2773 – American Literature I ENGL 2883 – American Literature II REL ED 2103 – Intro to Old Testament REL ED 2203 – Intro to New Testament	PREREQUISITE for all courses with a HUMAN prefix: exemption from or exit from Developmental Reading All HUMAN courses in Category VI.A have a “global perspective.”
VII. General Education Elective (0–3 hours in order to equal at least 40 in general education.)	Choose from the following:* Any course from CATEGORIES II, IV, or VI above that is not being counted in that category. SPAN 1115* or SPCH 1403–ASL (NOTE: some colleges or universities do not accept ASL as General Education) HIST 1103 – History of Oklahoma HIST 2723 – History of the American Indian MCOMM 1113 – Intro to Mass Communication Other PSY courses (PSY 1113 is prerequisite.) Other SOC courses (SOC 1113 is prerequisite.) HPER 1113 – Health Concepts HPER 2102 – First Aid HPER 1102 – School and Community Health Other Math classes with a prerequisite of MATH 1513	*TEACHER CERTIFICATION. A student seeking Teacher Certification in Physical Science Education should take SPAN 1115 in this category. He or she should then take SPAN 1215 as an additional elective beyond the minimum required for the A.S. (unless the student has demonstrated language competency by alternate means.)
Courses Required for ALL Physical Science Tracks (13 hours)	Courses	Notes
Chemistry (5 hours)	CHEM 1415 – General College Chemistry II	
Physics (8 hours) Important note: Students planning to major in	Take <i>one</i> of the physics sequences: PHY 1114 – General Physics I PHY 1214 – General Physics II or PHY 2014 – Engineering Physics I*	*PRE or COREQUISITE: MATH 2235, required for Physics track.

physics or engineering at universities should take PHY 2014–2114.	PHY 2114 – Engineering Physics II	
Choose One Track	Courses	Notes
Chemistry Track (10 hours)	CHEM 2105 – Organic Chemistry I CHEM 2205 – Organic Chemistry II	
Physics Track (8–10 hours)	Select two depending on what course was taken in Category III. MATH 1613 – Trigonometry MATH 2235 – Calculus I* MATH 2245 – Calculus II	*Calculus I is a prerequisite to Engineering Physics, which is required for the physics track.
General Physical Science Track (7–10 hours)	Select two courses from the following: Any course(s) from the Chemistry & Physics tracks PHY SC 1124 – Astronomy PHY SC 1214 – Earth Science GEOL 1114 – General Geology MATH 2253 – Differential Equations	Pay careful attention to prerequisites for major field courses.
Total for A.S. in Physical Science	Minimum of 61–64 Credit Hours	Many students will, in fact, complete more than the minimum of 64 hours because of the varied hours for science and math courses and general education electives.

Physical Education–Health–Wellness. Some universities have a requirement for physical education or health or wellness in their general education and/or teacher education curricula. Students should consult their advisors and the catalogs of the universities to which they intend to transfer to determine appropriate courses, if any, to take at Eastern.