PROGRAMS

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BACHELOR'S DEGREE

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Associate in Science

Degree Requirements Checklist

Associate in Engineering Science

Program Code: AES1

Description:

An Associate in Engineering Science degree is an award for the satisfactory completion of a prescribed curriculum intended to transfer to baccalaureate degree programs in the area of engineering. e curriculum guides that follow serve as a general guide to the selection of courses toward ful lling degree requirements speci c to your intended major at a four-year college or university. Since requirements vary at colleges and universities, it is important to select your courses with the assistance of an academic advisor.

Admission:

Associate in Engineering Science

Degree Requirements Checklist

Biology Pre-Major

Chemistry Pre-Major

Associate in Science Degree

swic.edu/chemistry

Department Chair: Mitch Robertson

Chemistry provides the basis for medicine, biomedical technology, ceramics, polymers, metallurgy, environmental and ecological sciences and many other elds. Students may pursue one of these elds or may choose a special interest in a speci c area of chemistry such as analytical chemistry, biochemistry, organic chemistry, physical chemistry, colloid and surface chemistry, polymer chemistry or biology.

Articulation Agreements

Earth Science Pre-Major (continued)

Geology or Oceanography Major
PHYS 151 College Physics I OR PHYS 204 Physics-Mechanics
PHYS 152 College Physics II OR PHYS 205 Physics-Heat, Electricity & Magnetism

Astronomy or Meteorology Major
MATH 204 Analytic Geometry & Calculus II
PHYS 204 Physics-Mechanics
PHYS 205 Physics-Heat, Electricity & Magnetism

4. Fulfill all other Associate in Science degree requirements listed in the front of this section.
5. Apply for graduation by the date published in the college calendar.
6. Earn at least 64 transferable credits with a minimum cumulative grade point average of 2.00 to graduate from SWIC. Many transfer institutions require a higher GPA for admission to the institution and/or specific majors.

Note: Enrollment in many transfer classes is based on your fulfillment of course requisites and/or your placement in Math and English classes.

Career Opportunities

A variety of careers are open to students who graduate with a bachelor's degree in geology, astronomy, meteorology or oceanography including:

- Geologist
- Oceanographer
- Mining engineer
- Meteorologist
- Teacher
- Astronomer
- Economic geologist
- Paleontologist
- Park naturalist
- Hydrologist
- Solar energy engineer
- Seismologist
- Agricultural scientist
- Environmental engineer
- Soil scientist
- Forest ranger
- Volcanologist

Engineering Pre-Major

Associate in Engineering Science Degree

swic.edu/engineering

Department Chair: Mitch Robertson

IMPORTANT NOTE TO STUDENTS: e Illinois Articulation Initiative (IAI) Engineering Major Panel recommends students planning to pursue an engineering major upon transfer should complete the Associate in Engineering Science degree instead of the Associate in Arts or Associate in Science degree. If these students instead choose to complete the full general education package in the AA or AS degree, it is likely that they will either have too many hours in transfer and/or will miss important prerequisites and major courses that will prolong the time it takes to obtain the bachelor's degree. is is why the AES degree is the

2. As you fulfill your degree requirements, it is strongly recommended by the IAI Engineering Major Panel that you take the following classes for the listed Engineering Specialties:

Mechanical Engineering, Aeronautical Engineering, Manufacturing Engineering, and Engineering Mechanics:
ENGR 103 Engineering Graphics
ENGR 263 Analytical Mechanics-Statics
ENGR 264 Analytical Mechanics-Dynamics
ENGR 271 Electrical Circuits
ENGR 275 Mechanics of Solids

Civil Engineering
ENGR 103 Engineering Graphics
ENGR 263 Analytical Mechanics-Statics
ENGR 264 Analytical Mechanics-Dynamics
ENGR 275 Mechanics of Solids

Electrical Engineering
ENGR 271 Electrical Circuits
OR MATH 171 Computer Science I-Java

Computer Engineering
MATH 171 Computer Science I-Java
OR MATH 271 Computer Science II-Java
ENGR 271 Electrical Circuits

Chemical Engineering
CHEM 106 General Chemistry II
CHEM 201 Organic Chemistry I
CHEM 202 Organic Chemistry II

Industrial Engineering
ENGR 103 Engineering Graphics
ENGR 263 Analytical Mechanics-Statics
ENGR 264 Analytical Mechanics-Dynamics
ENGR 275 Mechanics of Solids
ECON 202 Principles of Economics II (Micro)

3. The additional courses recommended below may be applicable toward a baccalaureate Engineering major. Please keep in mind that most transfer institutions limit the number of semester credits taken within a student's major field of study at the community college level. To ensure the acceptance of such courses toward your intended major, check with the four-year institution where you are transferring or a SWIC academic advisor regarding their applicability.
   - ENGR 103 Engineering Graphics
   - ECON 202 Principles of Economics II (Micro)
   - MATH 171 Computer Science I-Java
   - OR MATH 210 Computer Programming for Engineers
4. Fulfill all other Associate in Engineering Science degree requirements listed in the front of this section.
5. Apply for graduation by the date published in the college calendar.
6. Earn at least 65 transferable credits with a minimum cumulative grade point average of 2.00 to graduate from SWIC. Many transfer institutions require a higher GPA for admission to the institution and/or specific majors.

Note: Enrollment in many transfer classes is based on your fulfillment of course requisites and/or your placement in Math and English classes.

Career Opportunities

A variety of careers are open to students who graduate with a bachelor's degree in engineering including:

- Aerospace engineer
- Agricultural engineer
- Automotive engineer
- Biomedical engineer
- Chemical engineer
- Electrical/electronics engineer
- Industrial designer
- Materials engineer
- Mechanical engineer
- Metallurgical engineer
- Mining engineer
- Nuclear engineer
- Petroleum engineer
- Quality engineer

Mathematics Pre-Major

Associate in Science Degree

swic.edu/math

(August-May);
Department Chair: Keven Hansen
Assistant Chair: Jaime Manche

(June-July);
Department Chair: Jaime Manche
Assistant Chair: Melissa Rossi

As society has become more technical, many professions are requiring additional mathematical skills. Some of the fastest growing and highest paying elds require individuals with sophisticated mathematical competence, as well as other communication skills. A bachelor's degree in mathematics is a highly marketable degree in a wide variety of professions.

Articulation Agreements

- EIU – BS Mathematics-Applied Mathematics
- EIU – BS Mathematics-Pure Mathematics
- SIUE – BS Mathematics-Actuarial Science
- SIUE – BS Mathematics-Applied Mathematics
- SIUE – BS Mathematics-Pure Mathematics
- SIUE – BS Mathematics-Statistics

Important Transfer Information

Read the Course Description Guide (yellow section of the catalog) for more information on course content and requisites, which may be necessary for some courses.

If you KNOW where you are transferring:
- Transfer requirements vary by receiving institution.
- Plan your Associate in Science and transfer requirements with a SWIC academic advisor and use the transfer guide of the four-year institution you plan to attend.
- Refer to Recommended Steps and Timeline to Transfer to Four-Year Institutions in the front of this catalog.

If you DON'T KNOW where you are transferring:
- Plan your Associate in Science with a SWIC academic advisor.
- The Associate in Science Degree Requirement Checklist in the front of this section may be used as a GENERAL GUIDE; transfer requirements vary by receiving institution.
- Refer to Recommended Steps and Timeline to Transfer to Four-Year Institutions in the front of this catalog.

Associate in Science Degree (0002) – Mathematics Pre-Major

Students who plan to earn an Associate in Science degree and then transfer to a four-year college or university to major in Mathematics should follow the steps listed below. It is strongly recommended that you confer with a SWIC academic advisor prior to enrolling each semester and familiarize yourself with the speci c requirements of the four-year institution where you plan to transfer.

1. Ful ll the General Education and other institutional requirements for the Associate in Science degree listed in the front of this section. General Education course preferences may vary by transfer institution. For students who do not know where they plan to transfer, the Illinois Articulation Initiative
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Physics Pre-Major
Associate in Science Degree

swic.edu/physics

Department Chair: Mitch Robertson

Pre-Dentistry Pre-Major

Associate in Science Degree

swic.edu/pre-dentistry

Dentists focus on maintaining oral health through such preventive and repair practices as extracting, filling, cleaning or replacing teeth; performing corrective work, such as straightening teeth; treating diseased tissue of the gums; performing surgical operations on the jaw or mouth; and making and fitting false teeth. To be a dentist, one must attend dental school after graduating from college. Most dental schools require applicants to pass the DAT, or Dental Admissions Test, which tests a student's ability to succeeded in dental school.

Individuals interested in pursuing dentistry as a career should also note the importance of manual dexterity and scientific ability. Skilled, steady hands are necessa-t)tere604.6032 Tm[(tr)10 (eati0 (e nltgoo)85pa anty)85hapang (en-US)/MCID 1442 BDC BT9.6 0 0 9.6 35.8259 61

Pre-Medicine Pre-Major
Associate in Science Degree

swic.edu/pre-med

A physician's responsibilities cover a wide range of functions in health maintenance, including both acute care and preventive care approaches involving substantial patient education. These responsibilities include diagnosing disease, supervising the care of patients, and prescribing and implementing treatment.

Important Transfer Information

Read the Course Description Guide (yellow section of the catalog) for more information on course content and requisites, which may be necessary for some courses.

If you KNOW where you are transferring:

- Transfer requirements vary by receiving institution.
- Plan your Associate in Science and transfer requirements with a SWIC academic advisor and use the transfer guide of the four-year institution you plan to attend.
- Refer to *Recommended Steps and Timeline to Transfer to Four-Year Institutions* in the front of this catalog.

If you DON'T KNOW where you are transferring:

- Plan your Associate in Science with a SWIC academic advisor.
- The *Associate in Science Degree Requirement Checklist* in the front of this section may be used as a GENERAL GUIDE; transfer requirements vary by receiving institution.
- Refer to *Recommended Steps and Timeline to Transfer to Four-Year Institutions* in the front of this catalog.

Associate in Science Degree (0002) – Pre-Medicine Pre-Major

Students who plan to earn an Associate in Science degree, transfer to a four-year college or university, and then continue on to a school of medicine should follow the steps listed below. It is strongly recommended that you confer with a SWIC academic advisor prior to enrolling each semester and familiarize yourself with the specific requirements of the four-year institution where you plan to transfer.

1. Fulfill the General Education and other institutional requirements for the Associate in Science degree listed in the front of this section. General Education course preferences may vary by transfer institution.
2. As you fulfill your degree requirements, it is strongly recommended that you take the following classes:
   - BIOL 101 Principles of Biology I
   - BIOL 102 Principles of Biology II
   - CHEM 105 General Chemistry I
   - CHEM 106 General Chemistry II
   - CHEM 201 Organic Chemistry I
   - CHEM 202 Organic Chemistry II
3. Most medical schools will accept the following courses for credit towards meeting admission requirements:
   - MATH 191 Introduction to Statistics
   - PHYS 151 College Physics I
   - OR PHYS 204 Physics-Mechanics
   - PHYS 152 College Physics II
   - OR PHYS 205 Physics-Heat, Electricity & Magnetism
4. The optional courses listed below may be applicable toward admission to medical schools. Please keep in mind that most transfer institutions limit the number of semester credits taken within a student's major field of study at the community college level. To ensure the acceptance of such courses toward your intended major, check with the four-year institution where you are transferring or a SWIC academic advisor regarding their applicability.
   - PSYC 151 General Psychology
   - BIOL 157 Human Anatomy & Physiology I
   - BIOL 158 Human Anatomy & Physiology II
   - BIOL 270 Genetics
   - MATH 203 Analytic Geometry & Calculus I
5. Fulfill all other Associate in Science degree requirements listed in the front of this section.
6. Apply for graduation by the date published in the college calendar.
7. Earn at least 64 transferable credits with a minimum cumulative grade point average of 2.00 to graduate from SWIC. Many transfer institutions require a higher GPA for admission to the institution and/or specific majors.

Note: Enrollment in many transfer classes is based on your fulfillment of course requisites and/or your placement in Math and English classes.

Pre-Pharmacy Pre-Major

Associate in Science Degree

swic.edu/pre-pharmacy

Pharmacists distribute prescription drugs to individuals and advise patients and physicians on the selection, dosages, interactions and side e ects of medications. Pharmacists monitor the health of patients to ensure the safe and e ective use of medication. ey also advise patients about general health topics such as diet, exercise and stress management. ey could be involved in research for pharmaceutical manufacturers, developing new drugs and testing their side e ects, or they could work in marise patiyo5y</P <</Lang (en-US)/MCID 1712 >>BDC BT 9.uiyo5y</P <<tes M

Pre-Veterinary Medicine Pre-Major
Associate in Science Degree

swic.edu/pre-vet

A veterinarian's responsibilities cover a wide range of functions in animal health maintenance, including both acute care and preventive care approaches. These responsibilities include diagnosing disease, supervising the care of animals, and prescribing and implementing treatment.

Important Transfer Information

Read the Course Description Guide (yellow section of the catalog) for more information on course content and requisites, which may be necessary for some courses.

If you KNOW where you are transferring:

- Transfer requirements vary by receiving institution.
- Plan your Associate in Science and transfer requirements with a SWIC academic advisor and use the transfer guide of the four-year institution you plan to attend.
- Refer to Recommended Steps and Timeline to Transfer to Four-Year Institutions in the front of this catalog.

If you DON'T KNOW where you are transferring:

- Plan your Associate in Science with a SWIC academic advisor.
- The Associate in Science Degree Requirement Checklist in the front of this section may be used as a GENERAL GUIDE; transfer requirements vary by receiving institution.
- Refer to Recommended Steps and Timeline to Transfer to Four-Year Institutions in the front of this catalog.

Associate in Science Degree (0002) – Pre-Veterinary Medicine Pre-Major

Students who plan to earn an Associate in Science degree, transfer to a four-year college or university, and then continue on to a school of veterinary medicine should follow the steps listed below. It is strongly recommended that you confer with a SWIC academic advisor prior to enrolling each semester and familiarize yourself with the specific requirements of the four-year institution where you plan to transfer.

1. Fulfill the General Education and other institutional requirements for the Associate in Science degree listed in the front of this section. General Education course preferences may vary by transfer institution.
2. As you fulfill your degree requirements, it is strongly recommended that you take the following classes:
   - AGRI 111 Animal Science
   - BIOL 101 Principles of Biology I
   - BIOL 102 Principles of Biology II
   - CHEM 105 General Chemistry I
   - CHEM 106 General Chemistry II
   - CHEM 201 Organic Chemistry I
   - CHEM 202 Organic Chemistry II
3. Most veterinary schools will accept the following classes for credit towards meeting admission requirements
   - MATH 191 Introduction to Statistics
   - PHYS 151 College Physics I
   - OR PHYS 204 Physics-Mechanics
   - PHYS 152 College Physics II
   - OR PHYS 205 Introduction to Statistics
4. The optional courses listed below may be applicable toward admission to veterinary schools. Please keep in mind that most transfer institutions limit the number of semester credits taken within a student's major field of study at the community college level. To ensure the acceptance of such courses toward your intended major, check with the four-year institution where you are transferring or a SWIC academic advisor regarding their applicability.
   - BIOL 157 Human Anatomy & Physiology I
   - BIOL 158 Human Anatomy & Physiology II
   - BIOL 270 Genetics
   - MATH 203 Analytic Geometry & Calculus I
5. Fulfill all other Associate in Science degree requirements listed in the front of this section.
6. Apply for graduation by the date published in the college calendar.
7. Earn at least 64 transferable credits with a minimum cumulative grade point average of 2.00 to graduate from SWIC. Many transfer institutions require a higher GPA for admission to the institution and/or specific majors.

Note: Enrollment in many transfer classes is based on your fulfillment of course requisites and/or your placement in Math and English classes.