

AERONAUTICAL STUDIES - B.S.

College of Aeronautics and Engineering
www.kent.edu/cae

About This Program

The Bachelor of Science in Aeronautical Studies program prepares students for a successful career in the aviation industry. With a focus on practical training and hands-on experience, you will gain the skills needed to succeed as a pilot, air traffic controller, aircraft mechanic or any other aviation-related role. Our state-of-the-art facilities and experienced faculty provide the perfect learning environment, while internships and co-op programs offer real-world experience. Read more...

Contact Information

- cae@kent.edu | 330-672-2892
- Speak with an Advisor
- Chat with an Admissions Counselor

Program Delivery

- **Delivery:**
 - Mostly online
 - In person
- **Location:**
 - Kent Campus

Accreditation

The B.S. degree in Aeronautical Studies is accredited by the Aviation Accreditation Board International, Federal Aviation Administration.

Admission Requirements

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students who graduated from high school three or more years ago.

First-Year Students on the Kent Campus: First-year admission policy on the Kent Campus is selective. Admission decisions are based upon cumulative grade point average, strength of high school college preparatory curriculum and grade trends. Students not admissible to the Kent Campus may be administratively referred to one of the seven regional campuses to begin their college coursework. For more information, visit the admissions website for first-year students.

First-Year Students on the Regional Campuses: First-year admission to Kent State's campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Twinsburg Academic Center, is open to anyone with a high school diploma or its equivalent. For more information on admissions, contact the Regional Campuses admissions offices.

International Students: All international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning a minimum 525 TOEFL score (71 on the Internet-based version), minimum 75 MELAB score, minimum 6.0 IELTS score or minimum 48 PTE

Academic score, or by completing the ELS level 112 Intensive Program. For more information, visit the admissions website for international students.

Transfer Students: Students who have attended any other educational institution after graduating from high school must apply as undergraduate transfer students. For more information, visit the admissions website for transfer students.

Former Students: Former Kent State students or graduates who have not attended another college or university since Kent State may complete the reenrollment or reinstatement form on the University Registrar's website.

Admission policies for undergraduate students may be found in the University Catalog's Academic Policies.

Some programs may require that students meet certain requirements before progressing through the program. For programs with progression requirements, the information is shown on the program's Coursework tab.

Transfer students must have a minimum 2.250 overall GPA in all college-level coursework for admission to the Aeronautical Studies major.

Program Requirements

Major Requirements

Code	Title	Credit Hours
Major Requirements (courses count in major GPA)		
AERN 15000	INTRODUCTION TO AERONAUTICS	3
AERN 25100	INTRODUCTION TO AVIATION MANAGEMENT	3
AERN 25250	ELEMENTS OF AVIATION WEATHER	3
AERN 25350	FUNDAMENTALS OF AIR TRAFFIC CONTROL	2
AERN 25351	FUNDAMENTALS OF AIR TRAFFIC CONTROL LABORATORY	1
AERN 30000	PROFESSIONAL DEVELOPMENT IN AERONAUTICS	1
AERN 35020	AIRCRAFT PROPULSION SYSTEMS	3
AERN 35040	AIRCRAFT SYSTEMS I	3
AERN 35341	AIR TRANSPORTATION SYSTEMS	3
AERN 45030	AIRCRAFT SYSTEMS II	3
AERN 45099	AERONAUTICAL STUDIES CAPSTONE (ELR) ¹	3
or CAE 45092	AERONAUTICS AND ENGINEERING INTERNSHIP/ COOPERATIVE EDUCATION (ELR) (WIC)	
AERN 45130	PHYSIOLOGY AND HUMAN FACTORS OF FLIGHT	3
AERN 45135	AVIATION SAFETY THEORY	3
AERN 45150	APPLIED FLIGHT DYNAMICS I	3
AERN 45250	AVIATION LAW	3
AERN 45791	AVIATION SECURITY AND POLICY SEMINAR (WIC) ¹	3
Aeronautics (AERN) Electives		18
Aeronautics (AERN) or Engineering (ENGR) Upper-Division Electives (30000 or 40000 level)		9
Elements of Flight Theory Elective, choose from the following:		3-5
AERN 15740	ELEMENTS OF FLIGHT THEORY	
AERN 15745	NON-PILOT ELEMENTS OF FLIGHT THEORY	
AERN 15750 & AERN 15751	ELEMENTS OF FLIGHT THEORY I and PRIVATE PILOT FLIGHT I	
Additional Requirements (courses do not count in major GPA)		
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3

MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	3
MATH 11022	TRIGONOMETRY (KMCR)	3
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
PHY 13012	COLLEGE PHYSICS II (KBS)	2
PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
UC 10001	FLASHES 101	1
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each)		9
Kent Core Social Sciences (must be from two disciplines)		6
General Electives (total credit hours depends on earning 120 credit hours, including 39 upper-division credit hours)		9
Minimum Total Credit Hours:		120

¹ A minimum C grade must be earned to fulfill the writing-intensive requirement.

Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
2.000	2.000

Roadmap

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Semester One		Credits
AERN 15000	INTRODUCTION TO AERONAUTICS	3
! MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	3
UC 10001	FLASHES 101	1
Elements of Flight Theory Elective		3-5
Kent Core Requirement		3
Kent Core Requirement		3
Credit Hours		16
Semester Two		
AERN 25250	ELEMENTS OF AVIATION WEATHER	3
AERN 25350	FUNDAMENTALS OF AIR TRAFFIC CONTROL	2
AERN 25351	FUNDAMENTALS OF AIR TRAFFIC CONTROL LABORATORY	1
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
! MATH 11022	TRIGONOMETRY (KMCR)	3
Aeronautics (AERN) Elective		3
Credit Hours		15
Semester Three		
! PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
! PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
Aeronautics (AERN) Elective		3
Kent Core Requirement		3
Kent Core Requirement		3
Credit Hours		14
Semester Four		
AERN 25100	INTRODUCTION TO AVIATION MANAGEMENT	3
! PHY 13012	COLLEGE PHYSICS II (KBS)	2
Aeronautics (AERN) Elective		3
Kent Core Requirement		3

Kent Core Requirement		3
Credit Hours		14
Semester Five		
AERN 35020	AIRCRAFT PROPULSION SYSTEMS	3
AERN 35040	AIRCRAFT SYSTEMS I	3
Aeronautics (AERN) Elective		3
Aeronautics (AERN) or Engineering (ENGR) Upper-Division Elective (30000 or 40000 level)		3
Kent Core Requirement		3
Credit Hours		15
Semester Six		
AERN 30000	PROFESSIONAL DEVELOPMENT IN AERONAUTICS	1
AERN 35341	AIR TRANSPORTATION SYSTEMS	3
AERN 45030	AIRCRAFT SYSTEMS II	3
AERN 45130	PHYSIOLOGY AND HUMAN FACTORS OF FLIGHT	3
Aeronautics (AERN) Elective		3
Aeronautics (AERN) or Engineering (ENGR) Upper-Division Elective (30000 or 40000 level)		3
Credit Hours		16
Semester Seven		
AERN 45099 or CAE 45092	AERONAUTICAL STUDIES CAPSTONE (ELR) or AERONAUTICS AND ENGINEERING INTERNSHIP/COOPERATIVE EDUCATION (ELR) (WIC)	3
AERN 45150	APPLIED FLIGHT DYNAMICS I	3
AERN 45250	AVIATION LAW	3
Aeronautics (AERN) Elective		3
Aeronautics (AERN) or Engineering (ENGR) Upper-Division Elective (30000 or 40000 level)		3
Credit Hours		15
Semester Eight		
AERN 45135	AVIATION SAFETY THEORY	3
AERN 45791	AVIATION SECURITY AND POLICY SEMINAR (WIC)	3
General Electives		9
Credit Hours		15
Minimum Total Credit Hours:		120

University Requirements

All students in a bachelor's degree program at Kent State University must complete the following university requirements for graduation.

NOTE: University requirements may be fulfilled in this program by specific course requirements. Please see Program Requirements for details.

Flashes 101 (UC 10001)	1 credit hour
Course is not required for students with 30+ transfer credits (excluding College Credit Plus) or age 21+ at time of admission.	
Diversity Domestic/Global (DIVD/DIVG)	2 courses
Students must successfully complete one domestic and one global course, of which one must be from the Kent Core.	
Experiential Learning Requirement (ELR)	varies
Students must successfully complete one course or approved experience.	
Kent Core (see table below)	36-37 credit hours
Writing-Intensive Course (WIC)	1 course

Students must earn a minimum C grade in the course.

Upper-Division Requirement	39 credit hours
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Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate.

Total Credit Hour Requirement	120 credit hours
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Kent Core Requirements

Kent Core Composition (KCOMP)	6
Kent Core Mathematics and Critical Reasoning (KMCR)	3
Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)	9
Kent Core Social Sciences (KSS) (must be from two disciplines)	6
Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)	6-7
Kent Core Additional (KADL)	6
Total Credit Hours:	36-37

by equipping graduates with more than foundational knowledge of aviation, as well as specialized knowledge from associated disciplines.

The major is well suited for the following students:

- Transfer students with military credits;
- Professional flight experience, certificates and/or ratings; and
- Students who love the field of aviation but wish to seek a more entrepreneurial pathway into the field.

Students may apply early to the M.S. degree in Aviation Management and Logistics and double count 9 credit hours of graduate courses toward both degree programs. See the Combined Bachelor's/Master's Degree Program policy in the University Catalog for more information.

Program Learning Outcomes

Graduates of this program will be able to:

1. Explain the physics of flight, aerodynamics and the effects of the atmosphere.
2. Describe the operation of aircraft systems and how they integrate.
3. Demonstrate the process of air traffic control and describe the components of the National Airspace System.
4. Investigate physiological and human factors as they relate to aviation safety.
5. Accomplish successful academic work in aviation and associated academic disciplines in preparation for professional work in the aviation industry.

The educational goals of the program are the following:

1. Exhibit the qualities of excellence, integrity, leadership, management and professionalism within their area of professional specialization in aviation.
2. Demonstrate a professional commitment to safety and contribute to the safety culture within their area of professional specialization in aviation.
3. Demonstrate the ability to improve aerospace for generations to come through experiential learning, creativity and innovation within their area of professional specialization in aviation.
4. Manifest the college's core values in the areas of collaboration, compassion, inclusiveness, innovation, integrity, respect and perseverance within their area of professional specialization in aviation.

Full Description

The Bachelor of Science degree in Aeronautical Studies prepares students for entry-level technological positions in aviation and related areas. Although focused on a broad foundation of aeronautically-related subjects, the program provides a significant number of electives that allow students to explore other areas of interest or earn a minor in a particular area of study.

The mission of the Bachelor of Science degree in Aeronautical Studies is to prepare students for a broad range of professional careers in aviation