AIR TRAFFIC AND AIRSPACE MANAGEMENT - B.S.

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

About This Program

Ready to lead the future of air traffic and help shape the systems that keep our skies safe, efficient and innovative? The Air Traffic and Airspace Management program prepares students for high impact roles in air traffic control, aircraft dispatch and emerging fields like advanced and urban air mobility to manage complex airspace and support the next generation of aviation. Read more...

Contact Information

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

Program Delivery

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

Examples of Possible Careers and Salaries*

Air traffic controllers

- 0.5% little or no change
- 24,300 number of jobs
- $130,420 potential earnings

Additional careers

- Airport operations specialist/manager
- Airspace planning consultant
- Air traffic control (ATC) instructor
- Aviation analyst
- Aviation consultant
- Aviation safety inspector
- Flight dispatcher
- Flight standards or regulatory compliance officer
- Risk and safety analyst
- Simulation specialist
- Transportation planner

Accreditation

The B.S. degree in Air Traffic and Airspace Management is accredited by the Aviation Accreditation Board International, Federal Aviation Administration.

* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics' Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

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 proficiency of the English language (unless they meet specific exceptions) through the submission of an English language proficiency test score or by completing English language classes at Kent State's English as a Second Language Center before entering their program. For more information, visit the admissions website for international 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.

Transfer Students: Transfer students must have a minimum 2.250 overall GPA in all college-level coursework for admission to the Air Traffic and Airspace Management major.

Transfer students visit the admissions website for transfer students for more information.

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

Students may be required to meet certain criteria to progress in their program. Any progression requirements will be listed on the program's Coursework tab

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 25252	THUNDERSTORMS AND SEVERE WEATHER	3
AERN 25350	FUNDAMENTALS OF AIR TRAFFIC CONTROL	2

AERN 25351	FUNDAMENTALS OF AIR TRAFFIC CONTROL LABORATORY	1
AERN 25800	INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS	3
AERN 30000	PROFESSIONAL DEVELOPMENT IN AERONAUTICS	1
AERN 35040	AIRCRAFT SYSTEMS I	3
AERN 35250	UNMANNED AIRCRAFT SYSTEMS LAW AND REGULATIONS	2
AERN 35350	TERMINAL OPERATIONS	3
AERN 35351	TERMINAL OPERATIONS LABORATORY	2
AERN 35650	NON-PILOT INSTRUMENT FLIGHT THEORY	3
AERN 35850	EMERGENT AIR VEHICLES AND INFRASTRUCTURE	3
AERN 35851	EMERGENT AIR VEHICLES AND INFRASTRUCTURE LABORATORY	1
AERN 45010	AIRCRAFT DISPATCH I	3
AERN 45020	AIRCRAFT DISPATCH II	3
AERN 45030	AIRCRAFT SYSTEMS II	3
AERN 45130	PHYSIOLOGY AND HUMAN FACTORS IN AVIATION	3
AERN 45135	AVIATION SAFETY THEORY	3
AERN 45150	APPLIED FLIGHT DYNAMICS I	3
AERN 45250	AVIATION LAW	3
AERN 45345	EN ROUTE OPERATIONS	3
AERN 45346	EN ROUTE OPERATIONS LABORATORY	1
AERN 45399	AIR TRAFFIC CONTROL CAPSTONE (ELR)	1
AERN 45499	AIR TRAFFIC CONTROL CAPSTONE LABORATORY (ELR)	2
AERN 45720	CREW RESOURCE MANAGEMENT	2
AERN 45791	AVIATION SECURITY AND POLICY SEMINAR (WIC) [1]	3
AERN 45820	AIRSPACE MANAGEMENT	3
ENGR 10005	INTRODUCTION TO CYBERSECURITY	3
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 15752	ELEMENTS OF FLIGHT THEORY I and ELEMENTS OF FLIGHT THEORY II	
Additional Requirements (courses do not count in major GPA)		
CAE 12260	SOLVING PROBLEMS IN AERONAUTICS AND ENGINEERING [2]	1-3
COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	3
MATH 11022	TRIGONOMETRY (KMCR)	3
MGMT 24163	PRINCIPLES OF MANAGEMENT	3
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
PHY 13012	COLLEGE PHYSICS II (KBS)	2
PHY 13022	GENERAL COLLEGE PHYSICS LABORATORY II (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
Minimum Total Credit Hours:		**121**

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

[2] Students scoring 34 or below on the ALEKS math assessment are required to enroll in CAE 12260 until they successfully complete MATH 00022.

Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
2.500	2.500

Roadmap

This roadmap is a recommended semester-by-semester plan of study for this program. Students will work with their advisor to develop a sequence based on their academic goals and history. 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
	AERN 25350	FUNDAMENTALS OF AIR TRAFFIC CONTROL	2
	AERN 25351	FUNDAMENTALS OF AIR TRAFFIC CONTROL LABORATORY	1
	CAE 12260	SOLVING PROBLEMS IN AERONAUTICS AND ENGINEERING	1
	MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	3
	UC 10001	FLASHES 101	1
	Flight Theory Elective		3-5
	Kent Core Requirement		3
		Credit Hours	**17**
	Semester Two		
	AERN 25800	INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS	3
	COMM 15000	INTRODUCTION TO HUMAN COMMUNICATION (KADL)	3
	ENGR 10005	INTRODUCTION TO CYBERSECURITY	3
	MATH 11022	TRIGONOMETRY (KMCR)	3
	Kent Core Requirement		3
		Credit Hours	**15**
	Semester Three		
	AERN 25250	ELEMENTS OF AVIATION WEATHER	3
	MGMT 24163	PRINCIPLES OF MANAGEMENT	3
	PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
	PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
	Kent Core Requirement		3
		Credit Hours	**14**
	Semester Four		
	AERN 25252	THUNDERSTORMS AND SEVERE WEATHER	3
	AERN 35250	UNMANNED AIRCRAFT SYSTEMS LAW AND REGULATIONS	2
	AERN 35350	TERMINAL OPERATIONS	3
	AERN 35351	TERMINAL OPERATIONS LABORATORY	2
	PHY 13012	COLLEGE PHYSICS II (KBS)	2
	PHY 13022	GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB)	1
	Kent Core Requirement		3
		Credit Hours	**16**

	Semester Five		
	AERN 25100	INTRODUCTION TO AVIATION MANAGEMENT	3
!	AERN 35040	AIRCRAFT SYSTEMS I	3
	AERN 35650	NON-PILOT INSTRUMENT FLIGHT THEORY	3
	AERN 35850	EMERGENT AIR VEHICLES AND INFRASTRUCTURE	3
	AERN 35851	EMERGENT AIR VEHICLES AND INFRASTRUCTURE LABORATORY	1
	Kent Core Requirement		3
		Credit Hours	**16**
	Semester Six		
	AERN 30000	PROFESSIONAL DEVELOPMENT IN AERONAUTICS	1
	AERN 45130	PHYSIOLOGY AND HUMAN FACTORS IN AVIATION	3
	AERN 45150	APPLIED FLIGHT DYNAMICS I	3
	Kent Core Requirement		3
	Kent Core Requirement		3
		Credit Hours	**13**
	Semester Seven		
	AERN 45135	AVIATION SAFETY THEORY	3
	AERN 45250	AVIATION LAW	3
	AERN 45345	EN ROUTE OPERATIONS	3
	AERN 45346	EN ROUTE OPERATIONS LABORATORY	1
	AERN 45720	CREW RESOURCE MANAGEMENT	2
	AERN 45820	AIRSPACE MANAGEMENT	3
		Credit Hours	**15**
	Semester Eight		
	AERN 45010	AIRCRAFT DISPATCH I	3
	AERN 45020	AIRCRAFT DISPATCH II	3
	AERN 45030	AIRCRAFT SYSTEMS II	3
	AERN 45399	AIR TRAFFIC CONTROL CAPSTONE (ELR)	1
	AERN 45499	AIR TRAFFIC CONTROL CAPSTONE LABORATORY (ELR)	2
	AERN 45791	AVIATION SECURITY AND POLICY SEMINAR (WIC)	3
		Credit Hours	**15**
		Minimum Total Credit Hours:	**121**

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
Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate.	
Total Credit Hour Requirement	120 credit hours

Kent Core Requirements

Kent Core Composition (KCMP)	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**

Program Learning Outcomes

Graduates of this program will be able to:

1. Demonstrate the knowledge and skills of air traffic and airspace management, as set forth by the AT-CTI program requirements, by applying rules and procedures needed to safely control traffic in the National Airspace System (NAS).
2. Demonstrate the necessary knowledge of the rules and procedures needed to test for the Federal Aviation Administration's 14 CFR Part 65 Aircraft Dispatcher Certification.
3. Demonstrate knowledge of and ability to adapt to the changing air traffic and airspace management technology and rules as the global aviation industry grows.

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 Air Traffic and Airspace Management is part of the Federal Aviation Administration's (FAA) Air Traffic-Collegiate Training Initiative (AT-CTI) to provide a broad education in several areas of aviation to operate the National Airspace System in the 21st century. The Air Traffic and Airspace Management major offers practical simulation-based training to prepare students for professional work in air traffic control (ATC) and management. Graduates have the knowledge and skills

to work as air traffic controllers, managers or numerous other types of professionals operating in the National Airspace System.

The mission of the Bachelor of Science degree in Air Traffic and Airspace Management is to help prepare students for success in numerous aviation-related fields, including those that are emerging such as advanced air mobility (AAM), space traffic management (upper class E traffic management) and remote and automated operations. As an FAA AT-CTI program, students receive specialized education and training to help them earn employment and advancement in ATC. Additionally, this program focuses on disciplines such as aircraft dispatch (14 CFR Part 65), AAM and many more.