

Aviation

M.S. in Aviation (<https://catalog.und.edu/graduateacademicinformation/departmentalcoursesprograms/aviation/avit-ms/>)

Ph.D. in Aerospace Sciences (<https://catalog.und.edu/graduateacademicinformation/departmentalcoursesprograms/spacestudies/ss-as-phd/>)

AVIT 501. General Issues in Aviation/Aerospace. 3 Credits.

This course is designed to introduce students to graduate school, library resources, and faculty research interests. Students will explore the historical, current and future issues related to their own interest areas in the aerospace industry. F,S.

AVIT 502. Aviation Economics. 3 Credits.

An in-depth examination of the economic aspects of the air transportation industry, with microeconomic analysis applied to decision making in the airline, general and corporate aviation, and airports. Topics include: basic economics of air transport supply and demand; demand forecasting; cost drivers; yield, revenue and capacity management; regulatory issues; political influences; and unique economic characters of international commercial aviation.

AVIT 503. Statistics. 3 Credits.

This course is an in-depth study of inferential statistics with emphasis on the analysis of variance models and subsequent comparison procedures. In addition, the course will include coverage of correlation and multiple regression techniques as data analytic tools. Also, coverage of survey construction and analysis of survey data will be presented. Course content will be presented within the context of aviation and psychology examples. (Psychology 541: Advanced Univariate Statistics can be substituted for AVIT 503). Prerequisite: An introductory statistics course or calculus course.

AVIT 504. Research Methods. 3 Credits.

Methods and procedures of development, design and analysis related to aviation industry research. Topics include problem identification, review of literature, research design, and data analysis. This course is designed to give an overview of quantitative, qualitative and mixed-method approaches research design. The course includes the experience of critically evaluating research projects and developing a research project based on the principles discussed in class. Prerequisite: AVIT 501, and AVIT 503 or PSYC 541. F.

AVIT 505. Qualitative and Mixed Methods Research Design. 3 Credits.

Examination and analysis of qualitative and mixed methods research design with particular emphasis on approaches relevant to problems in aerospace sciences or related fields. Students will learn about the various approaches to qualitative research design, data collection methods and data analysis. Combining quantitative and qualitative approaches into a cohesive mixed-methods design will also be discussed. Students will apply their learning into designing a research project. Prerequisite: AVIT 504. On demand.

AVIT 506. Quantitative Research Methods. 3 Credits.

The purpose of this course is to provide students the opportunity to acquire knowledge and skills necessary to apply quantitative research methods in research. Students will design a quantitative research project. Prerequisite: A graduate level Statistics course.

AVIT 507. Advanced Research Methods. 3 Credits.

This course will be a thorough discussion of the different methodologies utilized in theoretical and applied research. Experimental and quasi-experimental design, and topical areas of survey methodology data mining, simulations, and techniques for dissertation designs. Prerequisite: AVIT 503, AVIT 505, and AVIT 506.

AVIT 510. Aviation Public Policy and Regulations. 3 Credits.

This course will examine and discuss the initiation, formulation and implementation of public policies that affect the various segments of the aviation industry. Various regulatory areas within the aviation industry, such as scheduled air carriers, general aviation, airport operations, air traffic management, and international agreements, will be analyzed. On demand.

AVIT 511. Aviation Information Technology. 3 Credits.

This course is an introduction to information systems essential to an aviation business professional. It will provide an overview of current and emerging technologies in various database, data communication and e-commerce systems.

AVIT 512. Aviation Environmental Issues. 3 Credits.

This course examines current environmental issues within the aviation industry in the context of historical environmentalism, current laws and regulations, and emerging research findings. A broad survey of earth systems precedes a focused examination of contemporary aviation environmental issues.

AVIT 513. Aviation Safety Management Systems. 3 Credits.

An in-depth study of aviation safety management concepts and principles as they relate to effective safety programs within the airlines, corporate aviation, general aviation and airports.

AVIT 514. Aviation Management Theory. 3 Credits.

An in-depth review of organizations in the aviation industry, their structures, environments and leadership as it relates to human behavior. Topics include organizational design, climate and the interactions with individuals, groups, and different organizational structures within the airline, general aviation, corporate aviation and airport organizations.

AVIT 515. Human Factors and Ergonomics: Human Perceptions in Information Systems Design. 3 Credits.

Human perception and information processing will be discussed in relation to information system design requirements to optimize human performance. The Ergonomics components will highlight human-centered design of equipment, devices and processes that conforms to the human body (anthropometry) and its cognitive abilities within the aviation/aerospace environment. Topics include information systems design with regard to compatibility, perception, attention, situation awareness and decision processes. Applications to current workstation design will allow students to have a greater understanding of human centered design goals. On demand.

AVIT 516. Training System Design. 3 Credits.

The process of memory, learning, and judgment will be related to instructional design strategies in the aviation industry, where heavy use of simulation is used in the training and evaluation of aviation professionals. Topics include instructional design and assessment concepts, simulation design and decision making skills. Class presentations include operational problem-solving group work as well as research paper reviews.

AVIT 517. Airline Labor Relations and Law. 3 Credits.

This course will examine and discuss the application and impact of the Railway Labor Act as it pertains to air carrier labor operations. Topics of study will include labor history, organization, alternative dispute resolution, collective bargaining, and emerging labor trends. On demand.

AVIT 518. Human Error. 3 Credits.

The objective of this course is to develop a deeper understanding of the human error and its impact upon human performance in variety of fields. Prerequisite: Graduate Admission. S.

AVIT 520. Strategic Airport Planning. 3 Credits.

This course will explore the elements of airport planning within the public administration domain. Emphasis will be placed on individual airport's strategic plans, how airports operate efficiently and effectively with changing regulations and economic fluctuations in the global marketplace.

AVIT 521. Ethics in Aerospace. 3 Credits.

The course will introduce ethical concepts and frameworks used in professional decision-making. Students will engage with faculty and outside speakers to weigh decisions in the applicable ethical frameworks. Students participation will include graded elements of formal case presentations, class discussion sessions, essay examinations and review of scholarly and trade journal articles. The course will have a strong emphasis on research project design to assess dynamics of ethical decision-making in different populations, as well as exploring educational opportunities in the aerospace industry.

AVIT 522. UAS Management. 3 Credits.

This course provides a series of lectures or presentations by visiting lecturers or faculty on various themes related to Unmanned Aircraft Systems (UAS). Prerequisite: Graduate Student Status. F, odd years.

AVIT 523. Aviation Safety Data Analysis. 3 Credits.

The objective of this course is to obtain an understanding of various safety programs conducted throughout the aviation industry and examine the underlying analytical techniques associated with each program. Prerequisite: Graduate student status. SS.

AVIT 524. Air Traffic Management. 3 Credits.

This course will explore the elements of Air Traffic and Next Gen. There will be a discussion on how air traffic control works and the evolution of the Air Traffic Management of the National Airspace System in the US and abroad. Emphasis will be on the current day issues and how Air Traffic Management is changing not only in the US but in Canada, Europe and worldwide. Prerequisite: Admission (or conditional admission) to the Aviation Master of Science, The Aerospace PhD program, or consent of the instructor. S, odd years.

AVIT 525. Legal Issues in Aviation. 3 Credits.

The course will introduce legal concepts and frameworks of the United States' legal system. Issues particular to the aviation industry will be discussed. Students will engage in formal case presentations and discussions to gain an understanding of the legal issues faced in the aerospace industry. Prerequisite: Admission (or conditional admission) to the Aviation Master of Science program, the Aerospace PhD program, or consent of the instructor. SS, even years.

AVIT 526. UAS and the Law. 3 Credits.

This course introduces students to the laws and policies governing UAS operations including flight regulations, remote sensing issues, and data and cybersecurity issues related to UAS. The class scope of inquiry includes US and international law and examines both civil and military use. On demand.

AVIT 587. Supervised Field Work. 1-3 Credits.

Used primarily for individualized field placement so that the student may acquire practical experiences in the aviation industry. Prerequisite: Consent of graduate director. Repeatable to 6.00 credits. S/U grading.

AVIT 590. Aviation Seminar. 1-3 Credits.

A series of lectures presented by visiting lecturers and the faculty. Repeatable to 9.00 credits.

AVIT 591. Readings in Aviation. 1-3 Credits.

Readings in selected Aerospace Studies topics, with written and/or oral reports. Prerequisite: Consent of instructor. Repeatable to 6.00 credits.

AVIT 593. Individual Research in Aviation. 1-3 Credits.

Individual student projects designed to develop advanced knowledge in a specific area of expertise. A written report is required. May be repeated for up to 6 credits for Master's and up to 12 credits for Ph.D. Repeatable to 6.00 credits.

AVIT 595. Aviation Capstone. 3 Credits.

The Capstone course integrates, extends and applies knowledge learned in earlier Aviation courses and research projects. The course also undertakes an in-depth study of management theories relevant to the aviation industry and how leaders apply these theories in practice. Students will have the opportunity to demonstrate their knowledge and leadership abilities by working in teams to design and develop a solution to a current aviation problem, which will be assigned by the instructor. This effort will culminate in an on-campus presentation to the faculty and invited industry experts. Prerequisite: AVIT 504 or permission of instructor.

AVIT 996. Continuing Enrollment. 1-12 Credits.

Repeatable. S/U grading.

AVIT 997. Independent Study. 2 Credits.

Independent study and preparation of a written report. Prerequisite: Special Permission Only. On demand.

AVIT 998. Thesis. 1-4 Credits.

Preparation and defense of a thesis based on original research. Prerequisite: Admission committee approval and consent of instructor. Repeatable to 4.00 credits. On demand.

AVIT 999. Dissertation. 1-12 Credits.

An original research project approved by and completed under the supervision of a dissertation committee. Prerequisite: Graduate standing, approval, completion, and defense of dissertation proposal. Repeatable to 18.00 credits.