Airport Planning and Design

Summer 2025

## Instructor Information

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Office Phone | Mobile Phone | Email | Office Location |
| George List | 919.515.8038 | 919.793.5255 | [gflist@ncsu.edu](mailto:gflist@ncsu.edu) | FWH 3209 |
| Tom Slater | 919.926.4101 | 919.247.9242 | [Tom.slater@rsandh.com](mailto:Tom.slater@rsandh.com) | Virtual only by appt |
| John Holmes | 919.926.4104 | 336.971.9093 | [John.Holmes@rsandh.com](mailto:John.Holmes@rsandh.com) | Virtual only by appt |

### A person in a suit and tie Description automatically generated A person in a blue polo shirt Description automatically generated A person smiling at the camera Description automatically generated

### Office Hours

**Dr. List**: By appointment only, please use: <https://calendar.app.google/a4dzfRBVB5LaYiDR6>

**Tom Slater:** By appointment only

**John Holmes:** By appointment only

### Preferred Method of Communication & Response Time

* **Preferred method of communication:** If you need to reach us directly, my preferred method of communication is email. You can expect to receive a response within two business days (i.e. not over the weekend). If we email you directly, please strive to respond within two business days. It is recommended that you check your NC State email at least once a day to stay on top of course communications.
* **Asking questions about the course:** If you have a question about the course or its content, you can email us or post your question on the Student Help Forum in Moodle. You can expect to receive a response within two business days (i.e. not over the weekend).]
* **Email guidelines:** Always include a descriptive, specific but concise subject. Include your course number and section in your email and provide adequate context for your question to ensure full understanding of your email. Be sure to use your NC State email account and sign in with your name and Student ID number.

## Course Information

**Course Website**: <https://moodle-courses2527.wolfware.ncsu.edu/course/view.php?id=327&bp=s>

**Meeting Time and Location:** Distance Education

**Course Credit Hours**: 3

### Catalog Description

### Professional-level knowledge for the planning, design, and construction of civilian and military airports in the United States. This course is taught by engineering practitioners and offers learning scenarios like those assigned to entry level airport engineers.

### Structure

* This course is a**synchronous**. Students view recorded lectures. Additional materials and activities are delivered through **Moodle**, a secure and easy-to-use online learning platform. A suggested viewing schedule is provided.

Learning activities include reading assignments, quizzes, videos, narrated PowerPoint presentations, discussion forums, projects, and exams.

### Meeting Time and Tool Used

Students review lectures online. Expect a mixture of lectures, problem solving, and questions and answers. Links to the lecture material can be found on-line in Moodle.

### Prerequisites/Corequisites

Graduate standing in CCEE

### Minimum Technical and Digital Information Literacy Skills

Required technical Skills

* Navigate and use Moodle, NC State’s Learning Management System.
* Use Gmail, including attaching files to email messages
* Create and submit files in commonly used word processing program formats (MS Word, text editors, Google Docs).
* Download and install software as needed (see [section on required software](#_szgozn2yn2fm))
* Download and upload attachments
* Use spreadsheets, presentations, graphics programs, and other applications in digital environments
* Use web conferencing tools including Zoom and Google Meet.
* Post to discussion boards and forums

Required digital information literacy skills

* Perform online research using various search engines and library databases. Visit [Distance Learning Services](https://www.lib.ncsu.edu/distance) at NC State Libraries for more information.
* Use computer networks to locate and store files or data.
* Use online search tools for specific academic purposes, including the use of search criteria, keywords and filters
* Analyze digital information for credibility, currency, and bias (e.g... disinformation, misinformation)
* Properly cite information sources
* Prepare a presentation on research findings

### General Education Program (GEP) Information

#### GEP Category Fulfilled

None

#### GEP Corequisites

None

## Learning Outcomes

By the end of this course, students should be able to



* Understand airport planning and design criteria and standards.
* Evaluate the professional skills relating to airport planning and design
* Create airport designs including geometric and pavement features
* Under airfield capacity approaches and calculations
* Apply tools and techniques for airport site investigation, site selection, and preliminary design
* Understand the relationship of airports to local economic development
* Understand the relationship of civil engineering in the field of airport creation and development

## Course Materials

### Required textbook

Copies of the following aviation publications:

* FAA Advisory Circular 150/5300-13B, Airport Design with Change 1 (primary)
* FAA Advisory Circular 150/5320-6G, Airport Pavement Design and Evaluation (reference)
* FAA Advisory Circular 150/5325-4B, Runway Length Requirements for Airport Design (reference)
* FAA Advisory Circular 150/5070-6B, Airport Master Plans (reference)
* These are all available online through the FAA for free

### Other required materials

Supplementary materials, if needed, will be available on the Moodle site.

## Technology Requirements

NC State University Libraries offers [Technology Lending](https://www.lib.ncsu.edu/devices), where many devices are available to borrow for a 7-day period. [Computer labs](https://oit.ncsu.edu/my-it/hardware-software/unity-computer-labs/computer-labs-in-colleges-and-other-campus-units/) are available in various locations around campus for student use.

### Computer

A laptop computer is recommended for students taking this course. NC State’s Online and Distance Education provides [technology requirements and recommendations](https://online-distance.ncsu.edu/get-started/technology-requirements/) for computer hardware, and NC State’s Office of Information Technology provides recommendations for [your computer at NC State](https://oit.ncsu.edu/my-it/hardware-software/your-computer/).

### Other devices

No other devices are needed for taking this class.

### Software and digitally-hosted course components

There are assignments that make use of Excel, Google Earth, video playback, and instructor-provided software for simulation modeling and data collection.

## Other Student Expenses

Other than the textbook, no other student expenses should arise.

## Communication Guidelines

### Respecting our learning community

The [NC State Code of Student Conduct](https://policies.ncsu.edu/policy/pol-11-35-01/) outlines expectations for behavior in the classroom (whether virtual or physical) and the consequences for students who violate these expectations. Any behavior that impacts other students’ ability to learn and succeed will be addressed but expressing diverse viewpoints and interpretations of course content is welcome.

Community guidelines for this course include:

* Use a respectful tone in all forms of communication (email, written, oral, visual)
* Maintain professionalism (avoid slang, poor grammar, etc.) in your written communication.
* Respect regional dialects and culturally embedded ways of oral communication.
* Stay home or in your dorm room if you are exhibiting symptoms of a contagious illness (fever, chills, etc.).
* Enter our virtual and/or physical classroom community respectfully by refraining from lewd or indecent speech or behavior, helping to maintain a safe physical environment, not using your cell phone for voice or text communication except when explicitly given leave to do so, and not attending class under the influence of any substance.
* Treat each community member with respect by not recording others without their consent or engaging in any form of hazing, harassment, intimidation, or abuse.
* Respect cultural differences that may influence communication styles and needs.

### Plan for interaction between instructors and students

This course is hosted online. You are expected to be focused and succinct about your questions and requests. We will similarly endeavor to help you in a direct and fruitful manner.

### Expectations for learner participation and interaction

Some course activities including Moodle Forums and group work will require you to interact with other students in the course. Communication expectations including frequency and content are detailed in the information about each assignment or activity when it appears in the course.

## Grading and Feedback

### Grading criteria, details, and timing of feedback

The grading depends upon whether the class is taken as an undergraduate (CE 404) or a graduate student (CE 504).

For undergraduates the grading is predicated on the following:

|  |  |
| --- | --- |
| **Percentage of grade** | **Undergraduate Component** |
| 30% | Midterm Exam |
| 30% | Final Exam |
| 30% | Project |
| 10% | Homework Assignments |

For graduate students the grading is predicated on the following:

|  |  |
| --- | --- |
| **Percentage of grade** | **Graduate Component** |
| 30% | Midterm Exam |
| 30% | Final Exam |
| 20% | Project |
| 10% | Homework Assignments |
| 10% | Term Paper |

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### Grading scale

This course uses this grading scale:

|  |  |  |
| --- | --- | --- |
| **Low** | **Letter** | **High** |
| 97 ≤ | A+ | ≤ 100 |
| 93 ≤ | A | < 97 |
| 90 ≤ | A- | < 93 |
| 87 ≤ | B+ | < 90 |
| 83 ≤ | B | < 87 |
| 80 ≤ | B- | < 83 |
| 77 ≤ | C+ | < 80 |
| 73 ≤ | C | < 77 |
| 70 ≤ | C- | < 73 |
| 67 ≤ | D+ | < 70 |
| 63 ≤ | D | < 67 |
| 60 ≤ | D- | < 63 |
| 0 ≤ | F | < 60 |

### Requirements for earning a grade of “Satisfactory”

If you are taking this course for credit only (S/U), your grade will be reported as S (Satisfactory) when coursework is equivalent to a C- or better or U (Unsatisfactory) when coursework is equivalent to less than a C-. For more information, see the [Credit Only Courses regulation](https://policies.ncsu.edu/regulation/reg-02-20-15/).

Requirements and procedures for auditing this course

Auditing this course is approved on a case-by-case basis. Please contact the course instructor to attain approval. Refer to the [Audit regulation](https://policies.ncsu.edu/regulation/reg-02-20-04/) for more information and links to required forms.

Auditing this course is approved on a case-by-case basis. Please contact the course instructor to attain approval. Refer to the [Audit regulation](https://policies.ncsu.edu/regulation/reg-02-20-04/) for more information and links to required forms.

## Course Schedule

Please note: the course schedule is subject to change.

| Video File Title | Week/  Lecture | Topic |
| --- | --- | --- |
| CE 504 8/19/24 | 1/1 | Class Introduction, History and Evolution of Airports |
| CE 504 8/21/24 | 1/2 | Airport Basics and Airport Design Introduction |
| CE 504 9/9/24 | 1/3 | Aircraft Operations and Aerial Navigation |
| CE 504 8/26/24 | 2/4 | Airport Geometric Design I (Ch. 2 and 3) - Runways |
| CE 504  8/28/24 | 2/5 | Airport Geometric Design I (Ch. 2 and 3) - Runways |
|  | Week 3 | 5/26 – MEMORIAL DAY – NO CLASSES |
| CE 504 9/4/24 | 3/6 | Airport Geometric Design II (Ch. 4) - Taxiways |
| CE 504 9/11/24 | 3/7 | Airport Geometric Design III - Chapter 5 - Aprons and Other Facilities |
| CE 504 11/13/24 | 4/8 | Runway Connector Taxiways |
| CE 504  9/25/24 | 4/9 | Advanced Runway Geometrics - Declared Distances |
| CE 504 9/16/24 | 5/10 | General Aviation Airports from the Ground Up |
| CE 504 9/18/24 | 5/11 | Airport Ground Access and Parking Facilities/Landside Systems |
|  | **Week 6** | **MIDTERM EXAM via Moodle** |
|  | Week 6 | 6/19 – JUNETEENTH – NO CLASSES |
| CE 504 9/23/24 | 6/12 | Airfield Marking Systems and Other Visual Aids |
| CE 504 9/30/24 | 6/13 | Airfield Pavement Design and Construction I - Flexible Pavements |
| CE 504 10/2/24 | 7/14 | Airfield Pavement Design and Construction II - Rigid Pavements |
| CE 504 10/7/24 | 7/15 | Airport Environmental Considerations |
|  | Week 8 | 7/4 – INDEPENDENCE DAY – NO CLASSES |
| CE 504 10/21/24 | 8/16 | Airport Terminal Planning |
| CE 504 10/23/24 | 8/17 | Airport Master Planning |
| CE 504 10/28/24 | 9/18 | Airport Capacities and Delay |
| CE 504 11/4/24 | 9/19 | Airfield Lighting Systems, NAVAIDS, Energy Conservation and Sustainability |
| CE 504 11/11/24 | 10/20 | Preparing Contract Documents for Airport Projects |
| CE 504 11/18/24 | 10/21 | Airport Safety During Construction |
| CE 504 11/20/24 | 11/22 | Contractor Alternative Delivery and Airport Construction |
|  | **Week 12** | **FINAL EXAM via Moodle** |

## Course Policies

### Proctored exams

Exams will be administered through timed Moodle quizzes that will be made available during the week they are scheduled as nothing in the syllabus.

### Late assignments

Late assignments will be accepted with 10% deducted for every day submitted late. Assignments submitted later than two weeks past the original due date will NOT be accepted.

Optional homework assignments will not be accepted late.

### Incomplete grades, withdrawals

Information on incomplete grades can be found at [REG 02.50.03 – Grades and Grade Point Average](https://policies.ncsu.edu/regulation/reg-02-50-03/). If you encounter a serious disruption to your work not caused by you and you would have otherwise successfully completed the course, contact your instructor as soon as you can to discuss the possibility of earning an incomplete in the course for the semester, including an agreement on when the remaining work must be done in order to change the grade to the appropriate letter grade.

If your student must withdraw from a course or from the University due to hardship beyond their control, see [Withdrawal Process and Timeline | Student Services Center](https://studentservices.ncsu.edu/your-classes/withdrawal/process/) for information and instructions.

### Attendance

* Students are expected to attend all classes.
* Excuses for unanticipated absences must be presented to the instructor within one week after the return to class.
* Work missed must be made up within two weeks.

## University Policies

### Academic integrity and honesty

Students are required to comply with the university policy on academic integrity found in the [Code of Student Conduct 11.35.01 sections 8 and 9](http://policies.ncsu.edu/policy/pol-11-35-01). Therefore, students are required to uphold the Pack Pledge: “I have neither given nor received unauthorized aid on this test or assignment.” Violations of academic integrity will be handled in accordance with the [Student Discipline Procedures](https://policies.ncsu.edu/regulation/reg-11-35-02/).

Please refer to the [Academic Integrity](https://studentconduct.dasa.ncsu.edu/academic-integrity-overview/) web page for a detailed explanation of the University’s policies on academic integrity and some of the common understandings related to those policies.

### Student privacy

#### Originality Checking Software

* Turnitin is being used in this course to detect the originality of student submissions.

#### Class recording statement:

* In-class sessions are recorded in such a way that might also record students in this course. These recordings MAY be used beyond the current semester or in any other setting outside of the course. Contact us if you have concerns.

#### Class privacy statement:

* Student information in this course may be accessible to persons beyond the instructor and students in the course. This course may involve electronic sharing or posting of personally identifiable student work or other information with persons not taking or administering the course. Students will be asked to sign a consent form allowing disclosure of their personally identifiable work. No student must sign the consent form as a condition of taking the course. If a student wants to avoid signing the consent form, he or she has the right to ask the instructor for an alternative, private means of completing the coursework.

### Other Policies

Students are responsible for reviewing the NC State University PRR’s which pertain to their course rights and responsibilities:

* [Equal Opportunity and Non-Discrimination Policy Statement](https://policies.ncsu.edu/policy/pol-04-25-05) and [additional references](https://oied.ncsu.edu/equity/policies)
* [Code of Student Conduct](https://policies.ncsu.edu/policy/pol-11-35-01)
* [Grades and Grade Point Average](https://policies.ncsu.edu/regulation/reg-02-50-03)
* [Credit-Only Courses](https://policies.ncsu.edu/regulation/reg-02-20-15)
* [Audits](https://policies.ncsu.edu/regulation/reg-02-20-04)

## Student Resources

Academic and Student Affairs maintains a website with links for student support on campus, including academic support, community support, health and wellness, financial hardship, or insecurity, and more. [Find Help on Campus.](https://dasa.ncsu.edu/support-and-advocacy/find-help/)

### Disability resources

Reasonable accommodations will be made for students with verifiable disabilities. To take advantage of available accommodations, students must register with the [Disability Resource Office (DRO)](https://dro.dasa.ncsu.edu/). For more information on NC State’s policy on working with students with disabilities, please see the [Policies, Rules and Regulations page maintained by the DRO](https://dro.dasa.ncsu.edu/about-us/policies-rules-regulations/) and [REG 02.20.01 Academic Accommodations for Students with Disabilities](https://policies.ncsu.edu/regulation/reg-02-20-01/).

### Safe at NC State

At NC State, we take the health and safety of students, faculty and staff seriously. The [Office for Institutional Equity and Diversity](https://diversity.ncsu.edu/) supports the university community by providing services and resources to support and guide individuals in obtaining the help they need. See the [Safe at NC State webpage](https://diversity.ncsu.edu/safe/) for resources.

### Supporting Fellow Students in Distress

As members of the NC State Wolfpack community, we each share a personal responsibility to express concern for one another and to ensure that this classroom and the campus as a whole remain a healthy and safe environment for learning. Occasionally, you may come across a fellow classmate whose personal behavior concerns or worries you, either for the classmate’s well-being or yours. If you feel this way, I would encourage you to report this behavior to the [NC State CARES website](https://prevention.dasa.ncsu.edu/nc-state-cares/about/). Although you can report anonymously, it is preferred that you share your contact information so they can follow up with you personally.

## Course Evaluations

ClassEval is the end-of-semester survey for students to evaluate the instruction of all university classes. The current survey is administered online and includes 12 closed-ended questions and 3 open-ended questions. Deans, department heads, and instructors may add a limited number of their own questions to these 15 common-core questions.

Each semester students’ responses are compiled into a ClassEval report for every instructor and class. Instructors use the evaluations to improve instruction and include them in their promotion and tenure dossiers, while department heads use them in annual reviews. The reports are included in instructors’ personnel files and are considered confidential.

Online class evaluations will be available for students to complete during the last two weeks of the semester for full-semester courses and the last week of shorter sessions. Students will receive an email directing them to a website to complete class evaluations. These become unavailable at 8 am on the first day of finals.

* Contact ClassEval Help Desk: [classeval@ncsu.edu](mailto:classeval@ncsu.edu)
* [ClassEval website](http://go.ncsu.edu/cesurvey)
* [More information about ClassEval](http://oirp.ncsu.edu/surveys/classeval)

## Syllabus Modification Statement

Our syllabus represents a flexible agreement. It outlines the topics we will cover and the order in which we will cover them. Dates for assignments represent the earliest possible time they would be due. The pace of the class depends on student mastery and interests. Thus, minor changes in the syllabus can occur if we need to slow down or speed up the pace of instruction.