

Instructor

Kevin M. Taaffe, Ph.D.
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269 Freeman Hall
864-908-6836 (mobile #), 864-656-0291 (office #)

Instructor Office Hours

Wed 8:30am-10:00am, Fri 8:30am-10:00am, or by appointment

Initially Online Only

Teaching Assistants / Office Hours

Vishnu Prabu (vgirish@g.clemson.edu)

MW 10:00am-12:00pm

Initially Online Only

Marisa Shehan (mshehan@g.clemson.edu)

TuTh 12:00pm-1:30pm

Initially Online Only

Graders / Online Class Assistance

Kunal Sawant (ksawant@g.clemson.edu)

Ava Knoske (aknoske@g.clemson.edu)

Class / Lab Hours (format will be discussed in class)

Section 001: TuTh 2:00pm-3:15pm, Hendrix 101

Section 002: TuTh 3:30pm-4:45pm, Cooper 200B

Weekly online supplements to support class instruction

Software and (Required) Textbook

Student version of Arena 16. (Will be available on Canvas, also access [HERE](#).)

Rossetti, *Simulation Modeling and Arena*, 2nd Edition, 2015. (ISBN: 978-1-118-60791-6)

Textbook References

Simulation with Arena, by Kelton, Sadowski and Zupick, 6th Edition, 2014. (ISBN: 978-0073401317, McGraw-Hill)

Law, *Simulation Modeling and Analysis*, McGraw-Hill, 5th Edition, 2014.

Prerequisites

IE 3610, 3810

Main Objectives

At the end of the course, each student should be able to

- Develop credible and appropriately detailed simulation models;
- Analyze one system or a set of alternate systems with the correct statistical procedures;
- Summarize and explain the findings of a simulation analysis

The outline of topics to be covered is as follows

- Event-based Simulation
- Basic Simulation and Process Modeling
- Input Analysis
- Random Number Generation / Random Variate Generation
- Verification and Validation
- Output Analysis – Finite and Infinite Horizon Simulations
- Comparing Alternate System Configurations
- Queueing and Inventory Models
- Entity Transfer, Material Handling, and Advanced Topics

A detailed course outline with weekly progress will be available online via Canvas.

Grading

	<u>IE 4820</u>	<u>IE 6820</u>
In-Class Assignments (10-12 exercises)	10%	10%
Homework Assignments (Individually, 4-5 assignments)	20%	15%
Lab Assignments (Two people per team, 3 assignments)	30%	20%
Exam 1 (Tentatively on Thursday, 10/8)	20%	15%
Exam 2 / Final Exam (001: Thursday, 12/10, 8:00am-10:30am) (002: Friday, 12/11, 11:30am-2:00pm)	20%	20%
Semester Project (IE 6820 Students Only)		20%

Grading scale will be 90-100(A), 80-89(B), 70-79(C), 60-69 (D), below 60(F).

In-Class Assignments

In-class assignments are intended to provide immediate feedback on the student's ability to develop simulation models. Each assignment will have some type of submission at the end of class to show the progress and learning achieved. Submissions will either be marked as good (100), acceptable (80), or not acceptable (60). We will be lenient in assigning a score of 100, as this is a "learn as you go" component of the course. *The lowest score can be dropped from the student's average.* If you cannot attend class during a scheduled assignment, *you must notify me at least 24 hours in advance of class time* to receive an approved absence. (Severe illness still requires notification before class begins, and approvals will be granted on a case-by-case basis.) You will not be required to turn in the assignment if you have an approved absence for that day. No student will be allowed more than two approved absences. (Policy remains the same regardless of whether ICAs are conducted online or in the classroom.)

Homework Assignments

Homework and lab assignments will be given periodically throughout the semester, and there will be no dropped scores. Homework assignments will focus on a single topic and will usually be due in one week. Homework must be completed and turned in by the submission time stated on the assignment. No late submission of work will be accepted. If you are away from campus for authorized reasons on the homework due date, submit your homework early.

Lab Assignments

Lab assignments will typically involve a larger modeling component and you will have 1 ½ - 2 ½ weeks to complete the assignment. The lab assignments will be graded on the accuracy of the simulation model as well as the ability to answer all lab questions in a professional manner. This will be explained when the lab assignments are given. The weighting of the model and analysis may vary from lab to lab. All lab assignments will be completed in groups of two. You should expect to work together on the entire lab assignment, as your work will benefit greatly from this. *Lab assignments will be due at midnight on the due date, unless otherwise indicated!*

IE 6820 Requirements

All graduate students will be required to complete a semester project. The details of the project will be distributed during the first month of the course. Students enrolled in IE 6820 may also receive assignments that differ in the depth, topics covered, and requirements. NOTE: IE 6820 students will not have a third lab assignment. They will be very busy preparing their semester projects!

Exams

Exams may be a combination of computer-based exercises (developing small simulation models) as well as written exercises (conceptual model development, elements, techniques, and simulation concepts). Learning objectives will be provided prior to each exam. Exam dates listed above are subject to change. Exams will be delivered in an online format. Students should expect mostly a true/false, multiple choice, and short answer questions. This includes any questions related to simulation model development.

Re-Grading and Make-Up Policies

All requests for re-grades must be submitted, with a brief description of the item in question, no later than one week after the assignment was returned to you. Keep in mind that such requests are completely re-graded, and this may not always work out in your favor if there were any error oversights in the original grading.

Makeup exams will be given only if you have an official or a pre-approved reason or medical emergency. If you have a personal medical emergency and miss an exam, in-class assignment, or assignment due date, you must submit valid proof. Incomplete grades will be given only if you have a valid medical reason and proof for not completing the requirements of the course.

Attendance

Attendance at lectures is not mandatory but is expected. However, each student is responsible for all information distributed and/or presented during lecture periods.

The students are authorized to leave if the instructor or his assistant is more than 15 minutes late for a lecture. However, every possible effort will be made to inform you for any classes that are canceled due to an unscheduled conflict or emergency.

Laptop Requirement

This course has been designated as a laptop-required course. We will be using laptops to provide each student hands-on exposure (assignments, tutorials, etc.) to simulation software during lectures. Students should plan on bringing their laptops unless otherwise instructed.

Online Teaching Resources – Canvas, Zoom, WebEx

All course materials will be maintained on Canvas. In addition, links to Zoom and WebEx will be provided for participating in live lectures and office hours, as well as viewing pre-recorded lectures.

Email

You are responsible for all E-mail messages sent by the instructor and teaching assistants. Public messages intended for the entire class are sent automatically to campus accounts. If the student elects to forward campus mail to an off-campus account, the student remains responsible for these messages regardless of whether or not they are successfully delivered.

Cell Phones

All cell phones should be turned off (or put into silent mode) before the beginning of class.

Course Policies

You are encouraged to discuss the course material with other students. However, you are required to work independently on homework assignments and within your group pairings for lab assignments. Copying or plagiarism will be treated as academic dishonesty and will be handled according to university regulations. Students are expected to conduct themselves both in a professional manner and in accordance with the University's statement regarding academic integrity:

“As members of the Clemson University, we have inherited Thomas Green Clemson's vision of this institution as a “high seminary of learning.” Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.”

NOTE: When, in the opinion of a faculty member, there is evidence that a student has committed an act of academic dishonesty, the faculty member shall make a formal written charge of academic dishonesty, including a description of the misconduct, to the Associate Dean for Curriculum in the Office of

Undergraduate Studies. At the same time, the faculty member may, but is not required to, inform each involved student privately of the nature of the alleged charge.

Disability access statement from the Office of Student Disability Services:

"It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities. Students are encouraged to contact Student Disability Services to discuss their individual needs for accommodation."

Students with disabilities requesting accommodations should make an appointment with Dr. Arlene Stewart (656-6848), Director of Disability Services, to discuss specific needs within the first month of classes. Students should present a Faculty Accommodation Letter from Student Disability Services when they meet with instructors. Accommodations are not retroactive and new Faculty Accommodation Letters must be presented each semester.

Title IX Sexual Harassment:

Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity (e.g., opposition to prohibited discrimination or participation in any complaint process, etc.) in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. This policy is located at <http://www.clemson.edu/campus-life/campus-services/access/title-ix/>. Ms. Alesia Smith is the Clemson University Title IX Coordinator, and the Executive Director of Equity Compliance. Her office is located at 111 Holtzendorff Hall, 864.656.3181 (voice) or 864.565.0899 (TDD).

Prerequisites:

Prerequisites will be strictly enforced. Barring a successful appeal, you will be dropped from the roll if you lack these prerequisites, even if the deficiency is discovered after the drop/add period has lapsed.

Emergencies:

Emergency procedures have been posted in all buildings. Students are reminded to review these procedures for their own safety.