

## HS 6000 – Summer 2026

### Instructor Information

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**Instructor:** Prof. Turgay Ayer

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### General Course Information

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#### Description

Healthcare is the largest and one of the most complex industries in the US. Private organizations and Governments face severe challenges in delivering effective healthcare to their populations. The U.S. healthcare industry is facing a set of significant challenges on several fronts including ensuring access to care, enhancing quality of care, and containing costs.

There is increasing recognition that quantitative modeling approaches could help significantly to meet these challenges. Hospitals are implementing lean transformations and total quality management programs to reduce medical errors. Emergency departments are utilizing simulation modeling and process analysis to reduce waiting times and incidences of overcrowding. Several startup companies are building upon analytics-based approaches. The course will begin by introducing the students to three dimensions of performance of a healthcare system: cost, quality, and access. The main pursuit in the course will be to shine light on specific operations concepts and principles that can result in effective design and management of the healthcare delivery system.

The course will be mostly case based with supplemental readings from engineering/management periodicals and healthcare journals to provide appropriate contextual background. Intermittently, I will attempt to invite relevant guest speakers to share their experiences with the class.

The main intended audience of the course is students who are interested in exploring opportunities in the Healthcare sector. No prior exposure to medicine or healthcare is necessary.

## Course Learning Outcomes

Upon successful completion of this course, students should be able to:

- Identify triple aims in a healthcare system
- Identify key players in the US healthcare system
- Compare and contrast US healthcare system to healthcare systems in other developed nations
- Understand principles that can result in effective design and management of the healthcare delivery system.
- Conduct health-economic evaluation of new healthcare interventions

## Course Materials

**Recommended textbook:** Griffin PM, Nembhard HB, DeFlicht CJ (2016). Healthcare Systems Engineering, John Wiley & Sons, Hoboken NJ.

Available online (for free) at GT Library:

<https://ebookcentral.proquest.com/lib/gatech/reader.action?docID=4427253>

## Required Course Pack

Copyrighted material will be available through Harvard Business School Publishing (HBSP). Please click on the following link to access the course package. If you are not already registered, please register and login at HBSP to access the link below.

<https://hbsp.harvard.edu/import/1407367>

Other required reading will be available through Canvas. You are expected to check Canvas regularly.

**Grading Policy:**

Written Case Analyses	25% (2@12.5%)	-group
Written Case Analyses	25% (2@12.5%)	-individual
Class Participation	20%	-individual
Final Project	30%	-group

Letter Grade Minimum Target Averages: A: 90%; B: 80%; C: 70%; D: 60%

## Course Policies

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**Attendance and/or Participation**

Attendance is required. You are allowed up to three non-excused absences without questions asked.

**Academic Integrity**

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#).

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

**Core IMPACTS**

[Core IMPACTS](#) is the University System of Georgia's General Education curriculum. If you are teaching a course that counts towards Core IMPACTS, you should include a syllabus statement about the Core area and associated [career competencies](#). [This resource](#) developed by the Center for Excellence in Teaching and Learning and Online Education at Georgia State University includes template syllabus statements for each of the Core IMPACTS areas that you may adapt for your course.

### **Accommodations for Students with Disabilities**

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

### **Student-Faculty Expectations Agreement**

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

## Campus Resources for Students

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### **Undergraduate Student Academic Success Resources:**

A list of resources for undergraduate students' academic success and information about advising can be found at [Success at Tech](#).

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at [success.gatech.edu/tutoring](https://success.gatech.edu/tutoring), email us at [tutoring@gatech.edu](mailto:tutoring@gatech.edu), or come see us at Clough Undergraduate Learning Commons, Suite 283.

### **Graduate Student Academic and Professional Success Resources:**

A list of resources for graduate students is given on the [Office of Graduate and Postdoctoral Education](#) website. Specific information for [current graduate students](#) includes

- [Academic Resources](#) such as the Communications Center, Language Institute, Library, Catalog, Registrar, resources for conducting research, Advocacy and Conflict Resolution resources, and how to manage unexpected situations that may impact your academic performance;
- [Student Resources](#) such as Campus Services, Child Care/Family programs, Health & Wellness, Career Services, and the Student Resource Guide; and
- [Professional Development](#) such as the programming from the Career Center and other professional development resources and events”

### **Student Well-Being:**

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A [comprehensive list](#) of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being ([student-resource-guide \(gatech.edu\)](#))