

## **ISYE 6202 Syllabus**

**Warehousing Systems**, sections AQ, Q , and SCE, 3 credits

Fall 2026

### **Instructor Information**

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### **General Course Information**

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#### **Description**

This course is about enabling students to contribute professionally and/or scientifically through the next decades to the systemic design, engineering, analysis, planning, testing, implementation, operation, adaptation, and optimization of supply chain facilities and networks of such facilities. The course covers supply chain facilities such as logistic, deployment (e.g. warehousing), realization, and customer interface centers. Learning is aimed to be applicable in a wide variety of supply chain types, notably spanning e-commerce, healthcare, manufacturing, and retailing, concurrently subject to performance goals such as agility, efficiency, responsiveness, resiliency, scalability, and sustainability.

#### **Course Learning Outcomes**

The course focuses on key concepts, methodologies, practices, and technologies enabling the high-capability and high-performance networks of facilities that supply chains, industry and society need to thrive now and in the future. This notably includes agility, efficiency, hyperconnectivity, quality, resilience, responsiveness, scalability, security, smartness, and sustainability.

The course addresses four generic types of facility roles: (1) deployment centers such as warehouses, distribution centers, and fulfillment centers; (2) logistic centers, such as crossdocks, hubs, parcel sortation centers, container ports; (3) realization centers, such as fabs, factories, as well as production, assembly, personalization, and recycling centers; and

(4) customer interface centers, such as retail and showcasing centers and smart lockers. Any facility may have one or several of these roles and its role set may evolve through time.

The course technically enables students to develop and leverage data-driven, AI-enabled, and XR-supported analytical, conceptual, optimization, and simulation models and methodologies. The course aims for the students to master a modular system-of-systems modeling and design approach concurrently leveraging demand, performance, product, process, organization, operating, technology, capacity, layout, and digital twin models.

Professionally, the course develops cooperation skills to work with team members and managing team efforts, notably leveraging online presence and platforms; presentation and behavioral skills to defend a proposed design and get it accepted; adaptation skills to deal with changing and imprecise design tasks, notably exploiting engineering common sense; and information acquisition and analysis skills to gather and filter information from a variety of sources. The course is designed for both professionally oriented and research-oriented students, providing assignment options fitting both types.

### **Required Course Materials**

The course relies primarily on a set of documents, such as work and project specifications, class presentation documents and reference documents, made available on Canvas. For each theme, published scientific and professional papers/chapters are referenced.

### **Grading Policy**

The grading scheme of each student includes a mandatory discussion thread, coupled with a choice of casework-s and project-s as follows.

<u>Discussions:</u> 4 blocks at 5% each	20%
<u>Casework-s:</u> From 1 to 4 at 10-40% each	20 to 80%
<u>Project-s:</u> Up to 3, each worth 20% or 40%	0 to 60%
<u>Lack of attendance and participation:</u>	0 to -15%
<u>Total:</u>	100%

### **Letter grade**

The course grading scale will not be stricter than A: [91%, 100%], B: [81%, 91%], C: [71%, 81%], D: [50%, 71%], F: [0%,50%].

### ***Individual contribution assessment in a casework or project team***

The assessment of the contribution of each member in a casework or project team can be achieved according to the two following options.

In option 1. the team provides a unanimously signed document with its report, stating that the members all agree to have the same grade for the casework or project, as they consider having all provided similar effort and quality performance.

In option 2, for each casework team with  $m$  members, each student  $s'$  must provide an assessment  $A_{s'st}$  of the contribution of each team member  $s$  (including oneself) for each task  $t$ , with qualitative justification for major deviations versus equal contributions. Each task has a weight  $W_t$  (%) and is assessed an evaluation score  $E_t$  (%) by the teaching team. The casework score  $S_s$  of a student  $s$  is:  $S_s = \text{Min} (100\%, \sum_t W_t E_t \sum_{s'} A_{s'st} / m)$ . A student not providing a contribution assessment of the team members is automatically penalized by reducing his or her score by 20%.

## **Description of Graded Components**

### ***Discussions***

This is a means to engage students on a variety of topics related to the content discussed in class through the semester, fostering exchanges of information, brainstorming, explorations, debates, etc. Discussion threads will be opened on canvas with guidelines from the teaching team, some requiring specific onboarding contributions. Students pick the threads they engage in, not limited in any way in terms of thread choices and numbers. There will be a flow of four discussion threads through the semester, according to the specified schedule. For every thread series, each student is graded from 0 to 5 based on sustained engagement; excellence, rigor and originality of contributions to the selected discussion threads; as well as positive behavior and respect of other students engaged in the thread.

### ***Caseworks***

A casework is a hybrid between a case study, a homework, and a project. It is based on an industry-inspired synthetic case with a dataset shared by all teams, and it includes a set of tasks to be performed by each team. Each casework is elaborated by the Professor and his team to provide a rich and challenging learning experience.

Multiple caseworks are offered to the students who select which one-s they engage in. Casework launching will be distributed along the semester according to a planned schedule. Some caseworks form a series with linked start and end dates. There may be more than one casework available at a given launch date.

Casework teams are self-organized, with size bounds stated for each casework. The Professor and his Teaching Assistant-s collaborate toward helping those having trouble to team up by identifying them, grouping them when possible, and/or announcing their availability to formed teams.

Casework grading is based on the excellence of each task realization based on the delivered report, with the weight associated with each task purposefully not made known a priori to the teams. The grading does not take into consideration the number of students in a team.

### ***Projects***

Students may elect to do one to three projects for a combined maximum of 60%. They can do each project alone or in a self-organized team of three students maximum. Projects may take various natures, with a lot of degrees of freedom, as long as (1) they are within the spectrum of the course, and (2) their mission, weight, and timeline are approved by the Professor. Projects respectively weighing 20% and 40% are respectively half-semester-long and full-semester-long.

Typically, projects are of three types (yet not limited to these types):

1. Industry project: It requires agreement with a company or organization, addressing a challenge associated with the re-design of a supply chain facility, a key part of it, or a network of such facilities.
2. Research project: It may be theoretical, technological, methodological, or empirical. It may focus on any part of the course, and any type of facilities. It may include a literature review or be inspired by a set of scientific papers. It may notably leverage optimization, simulation, analytics, data science, and/or machine learning. It may have a functional focus or have a methodological focus solving a research problem within the supply chain facility spectrum. It may be about designing, enabling, and/or testing next-generation supply chain facility models, capabilities, and technologies (including design and testing technologies). One of the deliverables of a research project must be in the shape of a technical or scientific paper, others often include software code and computational results.
3. Learning experience project: It is generally focusing on how to develop superior experiences for learning the course content, specifically certain key topics covered in class or that could be covered in class. It may leverage novel technologies and concepts, such as simulations, gaming, and/or immersion. Such a project requires prototyping and concept proofing.

Each team is invited yet not forced to arrange a mid-term progress review with the professor.

Final deliverables for a project must include a technical report (Word, or Latex format); a video presentation (maximum 10 and 20 minutes respectively for 20% and 40% projects); any piece of software and set of AI prompts developed and leveraged during the project; optionally, an in-person presentation with the Professor.

## Course Policies

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### USG Required Course Policies [remove this heading in your final syllabus]

#### Attendance and/or Participation

In-class attendance is required and engaged in-class participation is expected for group A. Asynchronous remote attendance is required for group Q. Engaged participation in the online discussion is required for all students.

Weak attendance and participation, as well as recurrent lateness, shall be penalized according to the grading policy. For example, students missing most of the classes without valid documented justification will be imposed a -15% impact on their total grade.

#### 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.

## **Use of Generative AI**

Each contribution should be conceived and written in a highly personalized way by the student. The usage of Generative AI must be limited to preliminary search and early drafting. Respect of this requirement is subject to the Georgia Tech Honor Code. Any AI-generated text, figure, image or table should be clearly identified as such.

## **Campus Resources for Students**

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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*

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 \(gatech.edu\)](#))