Online Master of Science in Cybersecurity

Information Session

Georgia Tech

Agenda

- Meet the team
- Why Georgia Tech?
- Program curriculum
- Admissions requirements
- Program format
- Application requirements (including English proficiency requirement)
- Program cost
- Summary (key points already covered)
- Q&A

Meet the Team

Jennifer Wooley
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Academic Advisor

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Academic Advisor

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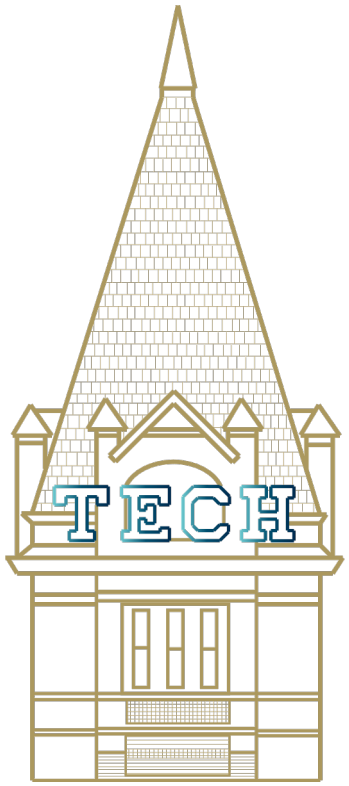
Why Georgia Tech?



#6 Best Graduate Computer Science Program

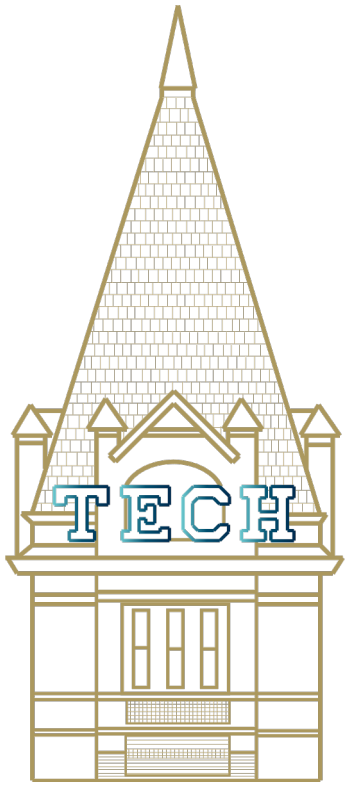
TOP 10 All 11 Graduate Engineering Programs ranked in the top 10

TOP 15 Top Public University in the United States

#1 ROI No. 1 Annual Return on Investment (in-state) by Payscale.com

Rankings from U.S. News and World Report

Why Georgia Tech?



- Courses are taught by distinguished instructors from academia and industry
- You have **Georgia Tech** faculty delivering a **Georgia Tech** program to get a **Georgia Tech** master's degree from the College of Computing, College of Engineering, or School of Public Policy
- Our program is considerably lower in tuition than other universities; our tuition cost is about $10,000 for the program

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Interdisciplinary Core (9 hours)	**Core** (6 hours)	**CS 6035:** Introduction to Information Security **PUBP 6725:** Information Security Policies and Strategies
	Flexible Core (3 hours)	Select one required course from a specialization track that is different from the track in which they are enrolled *Please note that CS 6750 – Human Computer Integration is an elective for Policy student ONLY for a flexible core option.

		Information Security	Cyber-Physical Systems	Policy
Track (18 hours)	**Required Courses** Select four courses (12 hours) from this list	**CS 6260**: Applied Cryptography **CS 6238**: Secure Computer Systems **CS 6262**: Network Security **CS 6265**: Information Security Lab: Reverse Engineering and Binary Exploitation or **CS 6264**: Information Security Lab: System and Network Defenses	**ECE 6320:** Power Systems Control and Operation **ECE 6347**: Cyber - Physical Electric Energy Systems **ECE 8813**: Introduction to Cyber - Physical Systems Security **ECE 8823:** Cyber Physical Design and Analysis	**PUBP 6502**: Information and Communications Technology Policy **MGT 6727**: Privacy for Professionals **PUBP 8813:** Public Policy for the Digital World **INTA 6450**: Big Data and Security **PUBP 6501**: Information Policy and Management **PUBP 8803**: Security Incidence Response **PUBP 8823:** Geopolitics of Cybersecurity **INTA 6103**: International Security **PUBP 8833:** Enterprise Cybersecurity Management
	Elective Courses Select two courses (6 hours) from this list	**CS 6210**: Advanced Operating Systems **CS 6250**: Computer Networks **CS 6300**: Software Development Process **CS 6400**: Database System Concepts & Design **CS 8803**: Information Security Lab: System and Network Defenses **CS 8803**: Security Incidence Response **CS 6747**: Advanced Topics in Malware Analysis **CS 8803**: Enterprise Cybersecurity Management	**ECE 8833:** Enterprise Security Management **ECE 6323**: Power System Protection **ECE 8863**: Principles of Smart Electricity Grids **ECE 6747**: Advanced Topics in Malware Analysis **ECE 8843:** Side-Channels and Their Role in Cybersecurity **ECE 8873**: Advanced Hardware Oriented Security and Trust	**INTA 6742:** Modeling, Simulation and Military Gaming The two additional courses are free electives that can be taken from any track, including the courses listed in the Policy specialization.
Practicum (5 hours)		**CS/ECE/PUBP 6267:** Practicum		

Schedule is subject to change.

Georgia Tech

Which courses should you take first?

1

Take intro core first

- PUBP: 6725
- CS 6035: prerequisite for CS courses

2

Take advanced core/electives after intro core courses

!

Students are only permitted to take 1 or 2 courses

- Courses are hard/rigorous
- Curriculum is the same in rigor as the on campus program
- Will take 10-20 hours/week work in addition to lectures

Program prerequisites

- Here is a list of concepts that you will need to be well versed in to be successful in CS 6035 (you may find additional details and examples of these concepts listed here:
  - Computer Organization and Architecture
  - Programming
  - Mathematics
  - Soft Skills
- If you are accepted into the program but lack a sufficient technical background, we strongly encourage you to take a computer science course to ensure success in the program. Here is a list of additional resources to help you prepare for CS 6035 and other courses in the Information Security and Energy System tracks:
  - Introduction to Computing
  - Buffer Overflow Concepts
  - Python Tutorial
  - gdb Debugging Full Example (Tutorial)
  - Cprogramming GDB Tutorial
  - SQL injection/JavaScript/XSS/CSRF vulnerabilities

Admission requirements

Information Security

- A Bachelor of Science from an accredited institution in Computer Science or Computer Engineering*
- A good understanding of computer science fundamentals such as processor architectures, operation systems, and networking protocols.
- At least one college-level course or equivalent knowledge in discrete mathematics
- Strong programming skills.

* Qualified applicants with other degree and relevant work experience in cryptography, secure computer systems, and/or network security are also encouraged to apply.

Cyber Physical Systems

- A Bachelor of Science from an accredited institution in Computer Engineering, Computer Science, or Electrical Engineering.*
- Basic familiarity with energy systems fundamentals and systems and controls is preferred.
- Strong programming skills.

*Qualified applicants with degrees in related fields and relevant work experience in cyber-physical, power, and/or embedded systems are also encouraged to apply

Policy

- A Bachelor of Science degree from an accredited institution in Business, Economics, International Relations, Political Science, or Public Policy. Pre-law or law degrees*
- Practical experience in information management and programming.
- At least one college-level course in computer science or programming.

*Applicants who are accepted into the program, and lack a sufficient technical background, will be required to take a free online computer science course to prepare for CS 6035.

A closer look at tracks

Information Security:

- Familiarity with both programming (at least one language such as Python or C++) and discrete mathematics
- Concentrates on principles and practical techniques for developing safeguards that can help secure computers and networks
- Secure software development, identity and access management, network intrusion detection and prevention, and forensics and incident response are some of the areas that are covered in-depth
- A lab course gives students hands-on experience with advanced security analysis tools to discover and mitigate software and network vulnerabilities

Potential Careers:

- Security Architect
- Security Consultant
- Security Analyst
- Penetration Tester/Ethical Hacker
- Chief Information Security Officer (CISO)

A closer look at tracks

Cyber Physical Systems:

- Also requires familiarity with programming (at least one language such as Python or C++)
- Focuses on the specialized concerns for keeping control of the operations and information embedded in components involved in energy creation, storage, and transmission
- Although the focus is on electrical power systems, the concepts you learn and the knowledge you gain can be applied to other domains such as manufacturing, chemical processing, agriculture, and others

Potential Careers:

- Operational Technology (OT) Cybersecurity Analyst
- Energy Cyber-Physical Systems Security Researcher
- Threat Analyst
- Penetration Tester
- Security Engineer

A closer look at tracks

Policy:

- Requires some familiarity with computers and networking; may need to learn a programming language if you do not already know one
- Emphasizes the administrative, market, and public policy tools used to keep cyberspace safe
- Focuses on the way IT security is affected by organizational, national, and international policies
- Topics covered include security policy frameworks, global internet governance, privacy technologies and law, critical infrastructure policies, cyberspace as a domain for international conflict, and multilateral cyber norm development

Potential Careers:

- Policy Analyst
- CISO (Chief Information Security Officer)
- Cybersecurity Threat Analyst

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Program format

32 credit hours;

10 courses

Online courses are offered in three terms:

Fall (Aug. – Dec.), Spring (Jan. – May), Summer (May – Aug.)

Courses are 16 weeks long in Fall & Spring, 11 weeks in Summer

Online courses

Lessons can be viewed at any time during the week once released, but courses have scheduled deadlines

Instructional team will have live office hours to answer questions

Digital learning tools (learning management system, online forums to ask questions with faculty and peers, video conference platform for online office hours)

Questions not answered during the session should be sent to https://bit.ly/contact-omscybersecurity

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Application requirements

All applicants must hold a **U.S. four-year baccalaureate** degree from a regionally accredited institution ***or* its equivalent** or higher from an institution authorized to award degrees by an appropriate government agency (e.g., Ministry of Education, University Grants Commission).

Only some three-year bachelor's degrees are considered equivalent to a U.S. bachelor's degree, so having one doesn't guarantee eligibility for a Georgia Tech graduate program.

If you completed your education outside the United States and want to determine equivalency, we highly recommend using one of these **Georgia Tech-approved credential evaluation services**:

- IEE
- Educational Perspectives
- SpanTran Pathways

There is a fee for these types of evaluations; however, the three service providers listed above have agreed to offer Georgia Tech applicants a discount.

Requirement: college transcripts

- **During the application process, you can upload unofficial transcript(s)**. We define an unofficial transcript as either an official electronic transcript, or an official paper transcript, that you (the applicant) have scanned, uploaded or emailed to us.

  The Graduate Admission Committee doesn't accept self-printed academic histories, web-based academic evaluations, or anything typed or handwritten. If you submit any such documents, the committee won't review your application.

- **If you're accepted into the program**, please **submit official versions** of all transcript(s) ASAP. (Requesting these documents can take months, so don't procrastinate.)

- You must submit a transcript/academic record for ***every* institution of higher education you attended, even if you didn't earn a degree there**.

Requirement: international academic credentials/documents

- You must submit academic credentials/documents (transcripts, marksheet or diploma supplement) in the **native language** and provide an **English translation by an official translation agency**, unless your institution issues academic credentials/documents in English.

- If you completed your education outside the United States, we highly recommend using one of these **Georgia Tech-approved credential-evaluation services**: IEE, Educational Perspectives, or SpanTran Pathways.

- If you don't use one of these three credential-evaluation services, your credentials/documents will be evaluated **in-house by the Office of Graduate Studies**.

  Due to their limited number staff with this expertise, the in-house evaluation process takes longer. It may even delay your admission to the next application term.

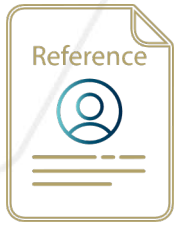
Requirement: resume and Statement of Purpose

A professional **resume or CV** that provides a summary of your experiences, education, achievements, and skills

Your **Statement of Purpose** should include:

- your goals and career plans
- the experience you bring to the program
- what you want to take away from the program
- any other information you feel is useful for the admission committee

Requirement: three letters of recommendation

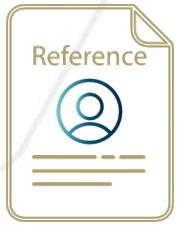


- Identify **three** recommenders well before the submission deadline, so they have plenty of time to complete their letters.

- Letters of recommendation should go beyond saying you're “a great person” or “the go-to for all answers.” Recommenders should be individuals with firsthand knowledge of your **academic abilities** or your **professional skills and performance**. They should be familiar with **any technical expertise you have** that's relevant or the foundational knowledge in this degree program's prerequisites. Recommenders also should be able to cite evidence of a **maturity level** that's compatible with performing well in graduate school.

- Your recommenders can be current or former: professors, supervisors or senior professionals. *They should not be peers or classmates.*

Requirement: three letters of recommendation



How to submit letters of recommendation:

1. Enter your recommender's information into your online application.
2. They will then receive an email inviting them to complete an online recommendation.
3. Submit your application once you've completed all the other requirements; don't wait for your recommenders to complete their recommendations. As each recommender completes his/her recommendation letter, it will automatically match with your application and become part of the final submission.

Requirement: English language proficiency

Georgia Tech requires that all International Applicants demonstrate proof of English language proficiency at the time of application.

Applicants who are not US Citizens or Permanent Residents can meet the English Language Proficiency using one of the following options.

1. GTLI English Language Assessment

A GTLI English Language Assessment Specialist will conduct this assessment in a 90-minute interactive, audio- and video-recorded online session. The assessment consists of two main parts: a speaking/listening section and a writing section. You will receive a score on a 3.0 scale and must secure a score of 3.

The interpretation of the scoring, as well as additional details about the assessment and the are available at: https://esl.gatech.edu/english-proficiency-assessments-graduate-students

Requirement: English language proficiency

2. TOEFL:

The required minimum total score on the TOEFL exams is:

- The internet-based TOEFL exam = 100, with minimum section scores of 20 or higher on each skill area
- The paper-based TOEFL exam = 600

3. IELTS Academic:

- Listening – 6.5
- Reading – 6.5
- Speaking – 6.5
- Writing – 6.0
- Overall – 7.5

Requirement: English language proficiency

4. You are exempt from submitting standardized test scores (TOEFL or IELTS) if you meet one of the following criteria:

A. Citizenship from one of the countries or territories listed below, or

B. Attended a university or college for a minimum of one academic year (3 quarters or 2 semesters) in one of the countries or territories listed below.

- American Samoa
- Australia
- Bahamas
- Barbados
- Belize
- Bermuda
- Botswana
- British Virgin Islands
- Canada, except Quebec
- Ethiopia
- Ghana
- Guam
- Guyana
- Ireland
- Jamaica
- Kenya
- New Zealand
- Nigeria
- Puerto Rico
- Singapore
- South Africa
- Trinidad and Tobago
- U.S. Virgin Islands
- Uganda
- United States
- United Kingdom
- Zambia
- Zimbabwe

Requirement: English language proficiency

- You must take the exam prior to submitting your application.
- Scores are good for two-years and must be valid on the first day enrollment into the program if admitted
- Living and working in the United States does not, on its own, satisfy the English Language Proficiency requirement (this includes H1-B visas)

Application requirements (continued)

GRE and **GMAT** Scores are not required:

- Submitting scores can strengthen your application if your quantitative scores are at or above the 90th-95th percentile
- Not submitting a GRE or GMAT score will have **no adverse effect** on your application.

The application fee is $75 domestic, $85 international

We admit for Fall and Spring only (continuing students can take summer courses)

Application deadlines (online) and status checking

Fall

- February 1 – Standard application deadline
- March 15 – Final application deadline
- August 21 – Classes begin

Spring

- June 15 – Standard application deadline
- August 1 – Final application deadline
- January 9 – Classes begin

Status checking is a great way to see where your application is in the process.

- Once your application is submitted you can check your application status here
- You will sign in using the same email and password used when you applied
- You have the ability to upload missing application materials via this application status page

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Tuition, fees, and payment options

Tuition

- $310 per semester credit hour

Mandatory student fees

- $107 in technology fees

Payment Options

Bursar & Treasury Services: http://bursar.gatech.edu/content/payment-options

- Georgia Tech Payment Plan
- 3rd party billing
- Employer Tuition Assistance
- Financial aid – only if taking 2 courses

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Let's Review

Curriculum

- You must choose 1 of 3 tracks; each track has unique requirements
- This is a part-time program. You cannot take more than 2 courses per term
- You have six-years from your first semester to complete the program
- This is a rigorous Master's level program; you may spend on average about 15-20 hours per week per course

Let's Review

Application Requirements

- Your personal statement should include your goals and career plans, the experience you bring to the program and what you want to take away from the program, and any other information you feel is useful for the admission committee
- You can use unofficial transcripts to submit your application
- Applicants are not required to submit GRE or GMAT scores with their applications. If you believe your score may strengthen your application, feel free to submit it. Please note that while a high GRE or GMAT score may strengthen your application, not submitting a GRE or GMAT score will have **no adverse effect** on your application

Let's Review

Application Requirements

- The application fee is $75 domestic, $85 international
- We admit for Fall and Spring only (continuing students can take summer course)
- We require 3 letters of recommendation (recommenders must submit their recommendations using the link they receive via email)

Let's Review

International Applicant Requirements

- International applicants must have their transcripts translated to English. For the fastest turn-around time, we recommend using one of these three Georgia Tech-approved credential evaluation services:
  - IEE
  - Educational Perspectives
  - SpanTran Pathways
- English Language Proficiency is required and can be fulfilled using scores from GTLI, TOEFL or IELTS
- Living and/or working in the U.S. does not qualify as an English Language Proficiency exemption (unless you are a PR or Citizen)

Let's Review

Application Deadlines

- Standard application deadline for Fall applications – February 1, at 11:59 PM ET
- Final application deadline for Fall applications – March 15, at 11:59 PM ET

Degree Name

- The name "Online" is an informal designation to help distinguish the delivery method of the online program.
- Your diploma will read "**Master of Science in Cybersecurity**"

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Questions?

Contact us: https://bit.ly/contact-omscybersecurity

Phone: 404-894-2649

Website: https://pe.gatech.edu/degrees/cybersecurity

Operating hours: Monday – Friday, 8:00 AM – 5:00 PM ET

Georgia Tech