

Introduction

Course Objectives and Outcomes

ECE 3741 is a laboratory course that focuses on building and analyzing practical electronic circuits. This laboratory reinforces skills learned in ECE 3710 (circuit analysis), which is a prerequisite for this course. ECE 3741 is a service course for non-ECE majors and satisfies the circuits laboratory requirement. After successfully completing this lab, you should be able to:

- Recognize and understand the functionality of basic circuits and components
- Be proficient in the use of essential electronics equipment, including
 - Breadboard
 - Oscilloscope
 - Multimeter
 - Power Supply
 - Function Generator
- Construct and debug an electrical circuit given a schematic diagram
- Compare theoretical calculations to measured results for various circuits and parameters
- Use knowledge gained in 3710 and 3741 to design certain circuit elements, build, and test them

Course Format

ECE 3741 is taught IN PERSON, on ATL campus (the RESD course attribute). Labs are conducted with a lab partner of your own choosing.

In person attendance is expected for all laboratory sessions. Labs meet once a week and are taught by graduate teaching assistants (TA's).

There are no lab meetings the first week of class (see Course Schedule).

Canvas Navigation

All course information is posted to Canvas. This includes:

- The [Syllabus \(https://gatech.instructure.com/courses/471666/assignments/syllabus\)](https://gatech.instructure.com/courses/471666/assignments/syllabus) pages
- Course announcements: I will post regular announcements throughout the semester with

logistical information, reminders, and tips or changes to an experiment. **Please set your notification settings so that you receive these in a timely manner.** To view all announcements, click [Announcements \(https://gatech.instructure.com/courses/471666/announcements\)](https://gatech.instructure.com/courses/471666/announcements) in the sidebar.

- List of labs, quizzes, lab exam, and relevant dates are found under [Assignments \(https://gatech.instructure.com/courses/471666/assignments\)](https://gatech.instructure.com/courses/471666/assignments) in the sidebar
- Your grades for all assignments are found under [Grades \(https://gatech.instructure.com/courses/471666/grades\)](https://gatech.instructure.com/courses/471666/grades) in the sidebar. **Canvas serves as your official grade record – ensure it is correct at all times.**
- The people in your section are listed under the [People \(https://gatech.instructure.com/courses/471666/users\)](https://gatech.instructure.com/courses/471666/users) sidebar
- You can view the course schedule in calendar format by clicking "Calendar" in the main Canvas sidebar.

Students are required to check Canvas regularly for official information. We have tried to remove as much of the clutter from Canvas as possible to help you get to the information you need quickly.

Course Schedule

The timing of GT holidays determines when each section will complete the experiments and quizzes. **The course schedule is now viewable on the ECE 3741 Canvas calendar, viewable by selecting “Calendar” in the left sidebar.** Any changes to the schedule will be communicated via your TA and/or Canvas.

List of Experiments:

Experiment	Description
1.	Essential Lab Equipment
2.	Op-Amps I
3.	Op-Amps II
4.	Filters I

5.	Filters II
6.	Diode Circuits
7.	Relaxation Oscillators
8.	Linear Power Supply with Audio Amp
9.	Pulse Width Modulation
10.	Switches and Sensors

Note: The list of experiments performed may differ in the summer semester. See the [Assignments \(https://gatech.instructure.com/courses/471666/assignments\)](https://gatech.instructure.com/courses/471666/assignments) tab for the final list.

Next: [Course Coordinators, Office Hours, and TA Contact Info \(https://gatech.instructure.com/courses/471666/pages/course-coordinators-office-hours-and-ta-contact-info\)](https://gatech.instructure.com/courses/471666/pages/course-coordinators-office-hours-and-ta-contact-info)

Course Coordinators, Office Hours, and TA Contact Info

Course Coordinators and Office Hours

Dr. Brian Beck	Dr. Allen Robinson
Office: Van Leer E396B	Office: Van Leer E388
bbeck6@gatech.edu (mailto:bbeck6@gatech.edu)	allen.robinson@ece.gatech.edu (mailto:allen.robinson@ece.gatech.edu)
Office hours (in person) : T R 12:30pm - 1:00pm W 1:30pm - 2:30pm	Office Hours (in person) : TBA

The laboratory sections of ECE 3741 are taught by graduate teaching assistants (TA's). Day-to-day questions and issues should be brought to your TA's attention first (absences, quiz grades, etc.) TA contact information is posted to Canvas once TA assignments have been made. See TA Contact Information by Section once available. Always allow **two business days** for a response from us – we're happy to help, but we do get a **lot** of emails from students.

TA Contact Information by Section

The list of TA's by section will be posted as soon as it is available; usually by the end of the first week of classes. **There are no labs during the first week of classes.**

Section Time	Last	First	Email
L01			
L01			
L02			

Section Time	Last	First	Email
L02			
L03			
L03			
L04			
L04			
L05			
L05			
L06			
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L13			
L13			
L14			
L14			
L15			
L15			
L16			
L16			

Section Time	Last	First	Email
L17			
L17			
L18			
L18			

Next: [Required Materials \(https://gatech.instructure.com/courses/471666/pages/required-materials\)](https://gatech.instructure.com/courses/471666/pages/required-materials)

Required Materials

The following materials are required for students taking ECE 3741:

- **Parts kit: The parts kit is sold by the ECE student organization, HKN, at your first laboratory meeting.** They accept cash, credit (with a convenience fee), and paper checks for purchase (no buzz funds). The parts kit from ECE 3710 is NOT compatible with ECE 3741; please do not confuse them. If you have a **complete** parts kit for ECE 3741 from last semester, e.g., from a friend who took the lab, you CAN use that and do not need to buy a new one. Only one parts kit is needed per group; you may split the cost with your lab partner.
- **Wire kit: The wire kit is also sold by HKN at your first lab meeting.** If you have an intact wire kit from ECE 3710 or ECE 3741, you CAN use that and do not need to buy a new kit. Only one wire kit is needed per group; you may split the cost with your lab partner.
- **Lab manual: *Experiments in Analog Electronics, 4th Edition*. The lab manual is available for purchase at the Barnes and Noble GT bookstore in Tech Square.** You do NOT need to have the manual for the first experiment; an electronic copy of lab 01 will be provided. The lab manual is copyrighted material. *Each* student must purchase their own manual.
- **NI-MyDAQ: Students do NOT need their NI MyDAQ kit from 3710.** You get to use the *real* bench top lab equipment in this lab! Feel free to sell this piece of junk to an underclassman.

The experiments cannot be performed unless the parts kit, wire kit, and lab manual are brought to the lab. Anyone who arrives at the lab session without the required materials will either receive a grade of zero for that experiment or be asked to leave and return with these materials at the discretion of the lab instructor.

HKN Parts Kit and Wire Kit Flyer:

Eta Kappa Nu is ECE's honorary greek organization. They handle sales of parts kits and wire kits every semester for this course. Their flyer with pricing information will be posted here once it is available.

Note: For early and late sections (8am and 6pm), an HKN representative will come directly to your lab room during the first lab meeting to sell parts and wire kits. For all other sections, HKN will have a bench set up outside the lab room, just around the corner.

HKN Parts / Wire Kit Flyer:

Please ignore the dates on the flyer. HKN will be selling parts August 25th through August 29th during your first lab section.

Taking **ECE 3741**? Welcome to the World of ECE!

Get parts you need from
Georgia Tech Eta Kappa Nu (HKN)!

Required Parts*

- **ECE 3741 Parts Kit - \$40**
 - Includes all required electronic components
- **Wire Kit (350pc) - \$16**
 - Have your ECE3710 wires? No need to buy (unless you want fresh ones)
 - Includes 350 multicolored wires

Tip: Split the costs with your lab partner!

Tip: Breadboards are provided in lab. You don't need to purchase them!

Note: This course also requires the **ECE 3741 Lab Manual, which must be purchased at the bookstore*

When: April 25th - April 29th

Time: 12pm - 5pm (General)

Time: 8am and 6:30pm (ECE3741 only)

Where: Van Leer 3rd Floor Middle Hallway

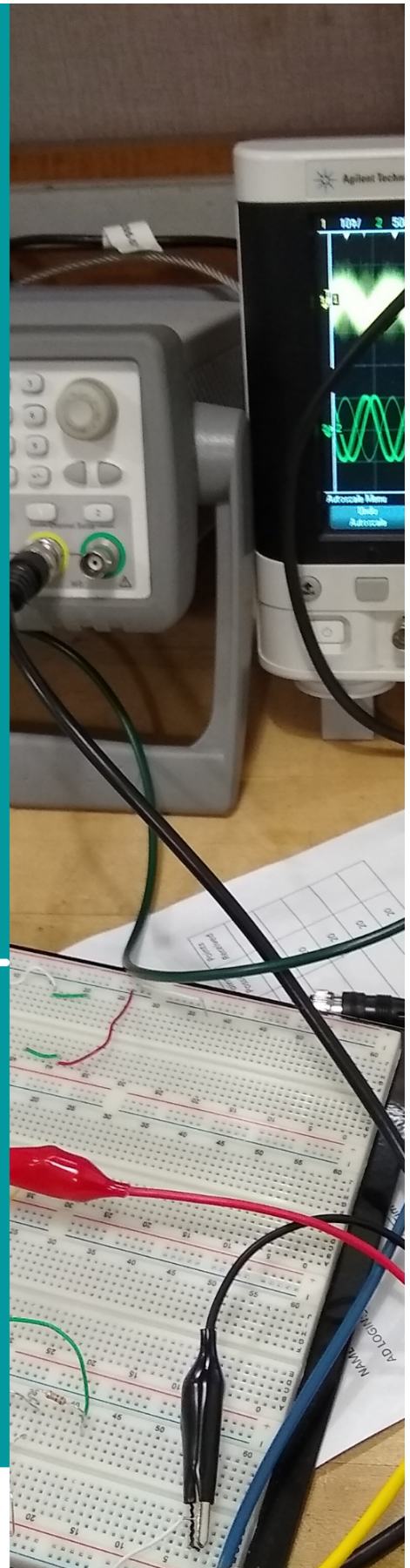
Why Buy From Us?

- No need to wait on shipping!
- Proceeds go to HKN's ECE scholarship fund

How to Purchase:

- Cash, Credit (\$2 surcharge), Debit, Check (to Eta Kappa Nu)

JAMECO
ELECTRONICS



Next: [Assignments, Grades, and Attendance \(https://gatech.instructure.com/courses/471666/pages/assignments-grades-and-attendance\)](https://gatech.instructure.com/courses/471666/pages/assignments-grades-and-attendance)

Assignments, Grades, and Attendance

Grades

Each laboratory section is graded independently. All letter grade assignments are made by the course instructor and are based on your total score and how the section performs overall. The traditional scale (greater than 90 = A, 80-90 = B, etc.) may be used as a general guide, but the actual ranges in a particular semester may be adjusted to determine the course letter grades. **The minimums of the traditional scale will never be increased in determining the final letter grades.** For example, if your final score is greater than 80, you will earn at least a B. It is possible to earn a B with a final score less than 80, depending on the distribution of scores in your section.

The final letter grade GPA of each section is set very close to 3.30 in accordance with ECE guidelines. In calculating your course score, each graded item is given the following weights:

Grade Item	Weight
Lab Reports	35%
Quizzes	35%
Lab Exam	30%

The lowest quiz and lowest lab score will be dropped. Any questions that you have about the method of grading or the numerical grade on an assignment must be brought to the attention of your TA or the course coordinator within one week of the assignment's return. You must check your grades weekly on Canvas and promptly report any grading errors to your TA or the course coordinator. Any "blank" or "missing" scores on Canvas will be replaced with a zero at the end of the semester. Be sure to bring this to your instructor's attention immediately if a grade is missing or you believe there is an error on Canvas.

Canvas cannot automatically display averages on a *per section* basis. **We provide updates on YOUR section's quiz averages, course averages, and even estimated letter grade cutoffs via periodic announcements.** Letter grade cutoffs are subject to adjustment, and updates are not provided after the lab exam is taken.

Lab Reports

There are no formal lab reports in ECE 3741. Hooray! Your lab report consists of answering all questions in the lab manual for your experiment, and including any plots or data collected during the lab. Data and answers to questions are filled out on a “lab report sheet”, which is posted to Canvas for each experiment under the [Assignments \(https://gatech.instructure.com/courses/471666/assignments\)](https://gatech.instructure.com/courses/471666/assignments) sidebar. Students should copy data/answers into their lab manual to keep for studying. Also, students must obtain “check offs” from their instructor at certain points indicated in the manual to receive credit for these sections.

Students work with a lab partner during the experiment. **Only one report sheet is handed in per lab group, due at the end of the lab.** Each lab and report must be completed during the assigned lab period. There are no “open labs” in ECE 3741, i.e., you are not allowed to come to lab later to finish an experiment. Your lowest lab report grade is dropped (see [Grading \(https://gatech.instructure.com/courses/471666/pages/assignments-grades-and-attendance\)](https://gatech.instructure.com/courses/471666/pages/assignments-grades-and-attendance)).

No makeup labs are permitted after the last day of practice exams (Experiment 11). The labs are “closed” after this date and used only for the purposes of administering the Lab Exam, your final assessment of the semester.

Any student who has unexcused absences for more than two lab experiments will receive an F in the course.

Quizzes

All students will take a quiz during the first 10 minutes of lab each week (except lab 1). The quiz will cover the experiment for the current week and/or for the previous week. Typically, the content for the previously completed experiment is more thorough, and content for that week’s experiment is simpler. It is intended to encourage students to read the experiment before showing up to lab, and review concepts from the previously completed lab. Your lowest quiz grade is dropped (see [Grading \(https://gatech.instructure.com/courses/471666/pages/assignments-grades-and-attendance\)](https://gatech.instructure.com/courses/471666/pages/assignments-grades-and-attendance)).

No makeup quizzes are permitted after the last day of practice exams (Experiment 11). The labs are "closed" after this date and used only for the purposes of administering the Lab Exam, your final assessment of the semester.

Lab Exam

The lab exam is a 90-minute comprehensive exam delivered in person during your last meeting time of the semester. Note that this is well before finals week; check your exam date under the [Assignments \(https://gatech.instructure.com/courses/471666/assignments\)](https://gatech.instructure.com/courses/471666/assignments) sidebar or the Course Summary on the home page. All quizzes and the lab exam are to be completed individually.

Any student who does not take the lab exam will receive an F for the course.

Attendance Policy

Attendance is mandatory. Any **unexcused** absence will result in a grade of **zero** for both the laboratory report and the laboratory quiz for that week. Lab quizzes are given at the beginning of the lab period (first 10 minutes). Stragglers who arrive after the quiz will receive a grade of zero at the TA's discretion. Any absence must be discussed with your TA or the course coordinator in advance. **Any approved makeup labs/quizzes must be performed in one of your TA's other sections within 1 week of the original due date.** The student must coordinate this with their TA.

Any student who has unexcused absences for more than two lab experiments will receive an F in the course.

Students MUST attend their assigned section. Check your schedule on Buzzport to ensure you are attending the correct section! Requests to change sections will not be approved under any circumstances. **Any work submitted while attending the wrong lab section will receive a grade of zero.**


If you are going to miss lab: First contact your TA and inform them of the situation. They may or may not refer it to the course coordinators. If your absence is approved, you can schedule a makeup lab/quiz in one of your TA(s) other available sections. The makeup must be performed within 1 week of the original due date.

Next: [Academic Misconduct and ODS Students \(https://gatech.instructure.com/courses/471666/pages/academic-](https://gatech.instructure.com/courses/471666/pages/academic-)


[misconduct-and-ods-students\)](#)

Academic Misconduct and ODS Students


Student-Faculty Expectations Agreement

At Georgia Tech, it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See <https://catalog.gatech.edu/rules/21/>  (<https://catalog.gatech.edu/rules/21/>) for an articulation of some basic expectations that you can have of us and that we can have of you. Respect for knowledge, hard work, and cordial interactions will help achieve this atmosphere. You are encouraged to remain committed to the ideals of Georgia Tech while in this class.

Academic Misconduct

All students taking this course are required to strictly adhere to the Georgia Tech Honor Code. Any violations of the Georgia Tech Honor Code are considered academic misconduct and will be submitted to The Office of Student Integrity for appropriate action. Information about the Honor Code may be found at <http://www.policylibrary.gatech.edu/student-affairs/academic-honor-code>  (<http://www.policylibrary.gatech.edu/student-affairs/academic-honor-code>). Any evidence that any part of any assignment has been copied in any manner (manually, optically, or electronically) from another person is plagiarism, which is academic misconduct. Copying or permitting another student to copy an assignment such as homework, computer assignments, tests, or any other assignment is plagiarism which is academic misconduct. Although it is normal and permissible for students to discuss, in broad general terms, the same or similar assignments, copying is expressly forbidden; an engineer is a creative thinker and not a scribe. Forgery, the forging of the signature of someone else, is misconduct. Disruptive behavior is misconduct. Any instance of misconduct will be forwarded to The Office of Student Integrity for adjudication. **The course coordinators reserve the right to assess any and all penalties for misconduct at their sole discretion.** Any assignments given a "zero" due to academic misconduct cannot be dropped.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)-894-2563 or <http://disabilityservices.gatech.edu>  (<http://disabilityservices.gatech.edu>), as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. **If you are a student with established accommodations, please bring this to your TA's attention as soon as possible during the semester.** Dr. Beck and Dr. Robinson receive automated notifications from ODS, and in general you do not have to notify us.