

Faculty with Research Interests in Electromagnetics and Acoustics (EA)

- Hao Ling Antennas, propagation, radar
- Ali Yilmaz Computational electromagnetics
- Andrea Alu Electromagnetic metamaterials
- Dean Neikirk MEMS sensors (also Solid State Electronics)
- Mircea Driga Electromechanics (also Energy Systems)
- John Pearce RF heating (also Biomedical Engineering)
- Ray Chen Optical interconnects (also PQEO)
- Zheng Wang Optical, microwave, acoustic devices (also PQEO)
- Neal Hall Acoustic transducers
- Mark Hamilton Nonlinear acoustics (Mech. Eng. Dept.)
- Preston Wilson Physical acoustics (Mech. Eng. Dept.)

Outline

1. Overview of MS and PHD degree requirements
2. Overview of EA courses
3. Course registration
4. Online Information

1a. MS Degree Program

- Three options
 - 8 courses plus thesis (2 semesters)
 - 9 courses plus report (1 semester)
 - 10 courses (NTNR)

1a. MS Degree: Thesis Option

Major

EE698A

EE698B

Supporting Work

- Non-EA courses
- Minimum of 2
- Max of 4

1a. MS Degree: Report Option

Major

EE398R

Supporting Work

- Non-EA courses
- Minimum of 2
- Max of 4

1a. MS Degree: NTNR Option

Major

Supporting Work

- Non-EA courses
- Minimum of 2
- Max of 5

1. MS Degree

Which Option Should I Pick?

- Don't have to decide right away
- Any intent on moving onto the PhD, try to do the thesis option to get a taste of research

Other Details

- Up to 2 undergrad electives may be counted toward the course requirement
- Up to 2 graduate courses may be transferred from other schools. Form required

1. MS Degree

Which Courses are Major Work in EA Track?

EE383L Electromagnetic Field Theory

EE383M Microwave Field Theory

EE392K Antenna Theory and Practice

EE392L Computational Electromagnetics

EE383N Theory of Electromagnetic Fields: Electrodynamics

EE383V New Topics in EM: Electromagnetic Metamaterials

EE383V New Topics in EM: Nonlinear Optics

EE392N Principles of Radar

EE384N.1 Acoustics 1

EE384N.2 Acoustics 2

EE384N.3 Electromechanical Transducers

EE384N.4 Nonlinear Acoustics

EE384N.5 Underwater Acoustics

EE384N.6 Architectural Acoustics

EE384N.7 Ultrasonics

EE384N.8 Acoustic MEMS

EE383P.1 Fourier Optics

EE383P.3 Techniques of Laser Communications

EE383P.4 Fiber and Integrated Optics 1

EE383P.8 Optical Communications

- Other courses may count as major work

1b. PHD Degree Program

- Minimum requirement: 10 graduate courses (4 must taken be at UT, 2 in supporting work, 3.5 GPA)
- Oral qualifying exam (committee, written proposal, oral)
- Dissertation and final defense (x99R first semester after being admitted to candidacy, and x99w subsequently until done)

1b. PHD Degree Program

- Each PHD-bound ECE student must take at least one three-credit non-classroom, non-conference research course every long semester (i.e., Master's Report, Master's Thesis, Research Problems, Dissertation Reading, or Dissertation Writing) unless petitioned by his/her ECE GSC PhD supervisor and approved by ECE Graduate Advisor
- You must take one of EE398R, EE698A/B, **EE397**, EE399R/W every long semester unless your supervisor petitions otherwise

2. EA Courses

Undergraduate Courses

- 325: Electromagnetic Engineering (required)
- 325K: Antennas and Wireless Propagation (elective)
- 363M: Microwave and RF Engineering (elective)
- 363N: Engineering Acoustics (elective)

Graduate Emag Courses

383L: Electromagnetic Field Theory

383M: Microwaves

383N: Advanced Electromagnetics

392L: Computational Electromagnetics

392K: Antennas

383V: Radar

383V: Electromagnetic Metamaterials

396K.24: Microwave Solid State Devices

2. EA Courses

Graduate Acoustics Courses

384N.1: Acoustics I

384N.2: Acoustics II

384N.3: Electromech. Transducers

384N.4: Nonlinear Acoustics

384N.5: Underwater Acoustics

384N.6: Architectural Acoustics

384N.7: Ultrasonics

384N.x: Acoustic MEMS

Tentative Course Schedule

Fall 2013

383L: Electromagnetic Field Theory (Yilmaz)

383N: Advanced Electromagnetics (Alu)

384N.1: Acoustics 1 (Hamilton)

384N.3: Electromechanical Transducers (Hall)

384N.5: Underwater Acoustics (Isakson)

Spring 2014

392K: Antenna Theory and Practice (Ling)

383P.8: Optical Communications (Chen)

384N.2: Acoustics 2 (Hamilton)

384N.7: Ultrasonics (Haberman)

Tentative Course Schedule

Fall 2014

383L: Electromagnetic Field Theory (Ling)

383V : Nonlinear Optics (Belkin)

383V : Advanced Electromagnetics (Driga)

384N.1: Acoustics 1 (Hamilton)

384N.3: Electromechanical Transducers (Wilson)

Spring 2015

392L: Computational Electromagnetics (Yilmaz)

383V: Metamaterials (Alu)

383P.1: Fourier Optics (Becker)

383P.8: Optical Communications (Chen)

384N.2: Acoustics 2 (Hamilton)

384N.4: Nonlinear Acoustics(Hamilton)

384N.6: Architectural Acoustics (Haberman)

3. Course Sign-Up for the Fall

- 1) **Incoming EA students are strongly encouraged take**
383L: Electromagnetic Field Theory
384N.1: Acoustics 1
- 2) RA or TA must take at least 9 hours (3 courses) each long semester.
RA must take 3 hours in the summer. x97C (“Research Problems”) is a filler course to meet this requirement.
- 3) “Registration form for first-semester ECE graduate students”
- 4) You can get my signature or your supervisor’s signature
- 5) If you can’t decide between two courses, sign up for one and go to both classes the first week of class. Then do an add/drop

4. Online Information

<http://ea.ece.utexas.edu>



Electromagnetics and Acoustics Track

Main

Degree Programs

Research Highlights

Research Seminar

Welcome to UT-Austin Electromagnetics and Acoustics Track

Antenna Design Contest

Congratulations to Suphanut Chansangavej, the winner of the EE325K Fall 2011 antenna design contest. More information about the contest and other entries are [here](#).

To New EA Grad Students

An information session was held on Tuesday (8/20) at 4:15 pm. The session provided a general overview of the area and course requirements, see the [slides](#) shown at the session.

Faculty Interested in Electromagnetics and Acoustics



EA Graduate Research Seminar

Main

Degree Programs

Research Highlights

Research Seminar

[Upcoming Seminars](#)

[Fall 11-Spring 12](#)

[Fall 10-Spring 11](#)

[Fall 09-Spring 10](#)

Electromagnetics and Electroacoustics Graduate Research Seminar

The EA track faculty organize a monthly seminar where experts from academia and industry present their latest research findings in electromagnetics and electroacoustics. Unless otherwise noted, the seminars are held first Fridays of the month at 11:00am in the [ACES](#) building. For questions and more information, please contact Profs. Hao Ling, Ali Yilmaz, Andrea Alu, or Neal Hall.

To receive additional information and reminder e-mails about upcoming seminars, please subscribe to the [seminar e-mail list](#).

Upcoming Seminars

Date/Time	Location	Speaker & Bio	Title & Abstract
Jan. 17, 2012 Thursday 2:00 pm	ACES 2.402	Ching-Kuang Clive Tzuang Professor Tianjin University, China	Evolutionary Planar Transmission-Line Structures: Their Physics and Practicality
Dec. 14, 2012 Friday 10:00 am	ENS 637	Hongyu Zhou Senior Research Engineer Samsung Telecommunications America	Wideband Microwave, Millimeter-Wave and Light-Wave Antennas
Nov. 2, 2012 Friday 10:00 am	ACES 2.402	Vitaliy Lomakin Associate Professor University of California San Diego	High-Performance Micromagnetics for Nanostructured Materials and Devices
Oct. 5, 2012 Friday 9:30 am	ACES 2.402	Bruce Hunt Associate Professor University of Texas at Austin	Oliver Heaviside and the Technological Roots of "Maxwell's Equations"