

APPLIED MATHEMATICS, ENGINEERING, AND PHYSICS, B.S. AMEP

ADVISING AND CAREERS

For information about advising for the special Letters & Science degree program, students should refer to AMEP Advising (<https://www.math.wisc.edu/amep/advising/>).

RECOMMENDED/SUGGESTED ADVANCED COURSES

A number of intermediate and advanced courses in the Mathematics and Physics Departments are recommended by AMEP advisors for use as electives beyond the core math and physics curricula. Other courses may be approved by AMEP faculty advisors.

Code	Title	Credits
Mathematics		
MATH 415	Applied Dynamical Systems, Chaos and Modeling	
MATH/STAT 431	Introduction to the Theory of Probability	
MATH/ COMP SCI 513	Numerical Linear Algebra (computing elective)	
MATH/ COMP SCI 514	Numerical Analysis (computing elective)	
MATH 561	Differential Geometry	
MATH/I SY E/ OTM/STAT 632	Introduction to Stochastic Processes	
Physics		
PHYSICS 323	Electromagnetic Fields	
PHYSICS 325	Optics	
PHYSICS 407	Advanced Laboratory	
PHYSICS 415	Thermal Physics	
PHYSICS 448 & PHYSICS 449	Atomic and Quantum Physics and Atomic and Quantum Physics	
PHYSICS 531	Introduction to Quantum Mechanics	
PHYSICS 551	Solid State Physics	
Chemical and Biological Engineering (CBE)		
CBE 250	Process Synthesis	
CBE 255	Introduction to Chemical Process Modeling	
Computer Engineering (ECE)		
E C E/ COMP SCI 352	Digital System Fundamentals	
E C E/ COMP SCI 354	Machine Organization and Programming	
Engineering Mechanics and Astronautics (EMA) or Mechanical Engineering (ME)		

E M A 303	Mechanics of Materials
M E 306	Mechanics of Materials
E M A/M E 307	Mechanics of Materials Lab
E M A 506	Advanced Mechanics of Materials I
E M A 519	Fracture Mechanics
Electrical Engineering	
E C E 210	Introductory Experience in Electrical Engineering
E C E 230	Circuit Analysis
E C E 270	Circuits Laboratory I
Thermodynamics, Fluids, and Heat Transfer (ME, CBE)	
M E 361	Thermodynamics
M E 363	Fluid Dynamics
M E 364	Elementary Heat Transfer
CBE 310	Chemical Process Thermodynamics
CBE 320	Introductory Transport Phenomena
CBE 430	Chemical Kinetics and Reactor Design
Aerodynamics and Astrodynamics (EMA)	
E M A 521	Aerodynamics
E M A 522	Aerodynamics Lab
E M A 523	Flight Dynamics and Control
E M A 542	Advanced Dynamics
E M A/ ASTRON 550	Astrodynamics
Materials Science and Engineering	
M S & E 350	Introduction to Materials Science
Plasma Physics and Engineering (ECE/NEEP/PHYS cross-listed)	
E C E/N E/ PHYSICS 525	Introduction to Plasmas
E C E/N E/ PHYSICS 527	Plasma Confinement and Heating
Industrial Engineering	
I SY E 313	Engineering Economic Analysis
I SY E 323	Operations Research-Deterministic Modeling

L&S CAREER RESOURCES

Every L&S major opens a world of possibilities. SuccessWorks (<https://successworks.wisc.edu/>) at the College of Letters & Science helps students turn the academic skills learned in their major, certificates, and other coursework into fulfilling lives after graduation, whether that means jobs, public service, graduate school or other career pursuits.

In addition to providing basic support like resume reviews and interview practice, SuccessWorks offers ways to explore interests and build career skills from their very first semester/term at UW all the way through graduation and beyond.

Students can explore careers in one-on-one advising, try out different career paths, complete internships, prepare for the job search and/or graduate school applications, and connect with supportive alumni and even employers in the fields that inspire them.

- SuccessWorks (<https://careers.ls.wisc.edu/>)
- Set up a career advising appointment (<https://successworks.wisc.edu/make-an-appointment/>)
- Enroll in a Career Course (<https://successworks.wisc.edu/career-courses/>) - a great idea for first- and second-year students:
 - INTER-LS 210 L&S Career Development: Taking Initiative (1 credit)
 - INTER-LS 215 Communicating About Careers (3 credits, fulfills Comm B General Education Requirement)
- Learn about internships and internship funding (<https://successworks.wisc.edu/finding-a-job-or-internship/>)
 - INTER-LS 260 Internship in the Liberal Arts and Sciences
- Activate your Handshake account (<https://successworks.wisc.edu/handshake/>) to apply for jobs and internships from 200,000+ employers recruiting UW-Madison students
- Learn about the impact SuccessWorks has on students' lives (<https://successworks.wisc.edu/about/mission/>)