

**Department of Mechanical and Aerospace Engineering**  
**Approved Out of Department Technical Electives**

<b>Course</b>	<b>Name</b>	<b>Requisites: PreReq, (CoReq)</b>	<b>MAE Majors</b>	<b>Offered</b>	<b>Credit</b>
AST 4142	Asteroids, Comets, and Meteorites	AST 2002	√	Fall	3(3,0)
AST 4152	Planetary Geophysics	AST 2002, PHY 2053C, and Senior standing, or C.I.	√	Even, Fall	3(3,0)
AST 4700	Experimental Methods in Astronomy	AST 2002, PHY 2048, and Senior standing, or C.I.	√	Even, Spring	3(3,0)
AST 4762C	Astronomical Data Analysis	MAC 2313, simple coding skills, and upper level AST course	√	Fall	3(3,1)
BCH 4053	Biochemistry I	CHM 2211	√	Fall, Spring	3(3,0)
CAP 4453	Robot Vision	COP 3503C, MAC 2312 or C.I.	√	Fall, Spring	3(3,0)
CDA 3103C	Computer Logic and Organization	COP 3223	√	Fall, Spring	3(3,0)
CEG 4011C	Geotechnical Engineering I	"C or Better" in EGN 3331C, CWR 3201	√	Fall, Spring	4(3,2)
CHM 3120	Analytical Chemistry	CHM 2046, CHM 2046L	√	Fall, Spring	3(3,0)
CIS 3360	Security in Computing	A grade of "C" or better in COP 3223C or EGN 3211	√	Occasional	3(3,0)
CNT 4703C	Design and Implementation of Computer Comm. Networks	CNT 3004, COP 3502C, and MAD 2104 or COT 3100C, or COP 3533 and CS Major "C"	√	Fall, Spring	3(1,2)
COP 3330	Object Oriented Programming	COP 3223 or EGN 3211	√	Fall, Spring	3(3,0)
COP 3502C	Computer Science I	COP 3223 or EGN 3211, MAC 1105C	√	Fall, Spring	3(3,1)
COP 3503C	Computer Science II	COP 3502C, COP 3330, COT 3100C or MAD 2104	√	Fall, Spring	3(3,1)
COT 3100C	Introduction to Discrete Structures	MAC 2311	√	Fall, Spring	3(3,1)
EEE 3307C	Electronics I	EEL 3123C	√	Fall, Spring	4(3,3)
EEE 4309C	Electronics II	EEE 3307C, EEE 3342C	√	Fall, Spring	4(3,3)
EEL 3123C	Networks and Systems	EEL 3004, MAP 2302 with a "C" (2.0) or better	√	Fall, Spring	4(3,1)
EEL 4612C	Introduction to Modern and Robust Control	EEL 3657	√	Occasional	4(3,3)
EEL 4216	Fundamentals of Electric Power Systems	EEL 3004C with a "C" (2.0) or better.	√	Spring	3(3,0)
EEE 4463	MEMS Devices and Applications	EEE 3350 or C.I.	√	Spring	3(3,0)
EEL 4660	Robotic Systems	EGN 3312 or EEL 4742C or COP 3503C	√	Spring	3(3,0)
EEL 4890	Continuous Systems Simulation I	MAP 2302	√	Occasional	3(3,0)
EGN 4060C	Introduction to Robotics	COP 3223C or EGN 3211, and EEL 3657 or EEL 4742C or COP 3503C or EGN 3321	√	Spring	3(2,3)
EMA 3000	Introduction to Polymeric Materials	CHM 2210, EMA 3102	√	Fall	3(3,0)
EMA 3012C	Experimental Techniques in Materials	A grade of "C" or better in EGN 3365 or EMA 3706	√	Fall, Spring	3(2,2)
EMA 3124	Design and Selection of Materials	A grade of "C" or better in EGN 3365 or EMA 3706	√	Fall	3(3,0)
EMA 4223	Fund. of Mech. Behavior of Materials	A grade of "C" or better in EGN 3365 or EMA 3706	√	Spring	3(3,0)
EMA 4307	Kinetics of Materials	EMA 3102	√	Fall	3(3,0)
EMA 4413	Electronic Properties of Materials	A grade of "C" or better in EGN 3365 or EMA 3706 and EGN 3373	√	Spring	3(3,0)
EMA 4513	Structures of Materials	EGN 3365 or EMA 3706	√	Occasional	3(3,0)
ENV 3001	Environmental Engineering	A grade of "C" or better in MAC 2312 and CHM 2045C or CHS 1440 or CHM 2041	√	Occasional	3(3,0)
HSC 3147	Introduction to Pharmacology	BSC 2010C with a grade of "C" (2.0) or better and sophomore standing	√	Fall, Spring	3(3,0)
HSC 4501	Epidemiology of Chronic Diseases	STA 2023	√	Fall, Spring	3(3,0)
HSC 4555	Pathophysiology I	ZOO 3733C and PCB 3703C each with a grade of "C" (2.0) or better.	√	Fall, Spring	3(3,0)
MAA 4226	Advanced Calculus I	MHF 3302, MAC 2313, MAS 3106, or C.I.	√	Fall	4(4,0)
MAA 4227	Advanced Calculus II	MAA 4226 or C.I.	√	Spring	3(3,0)
MAA 4402	Introduction to Complex Variables	MAC 2313, MAP 2302, MHF 3302, or C.I.	√	Spring	3(3,0)
MAD 4203	Introduction to Combinatorics	MAC 2312, and either MHF 3302 or COT 3100C, or C.I.	√	Fall	3(3,0)
MAD 4301	Introduction to Graph Theory	Either MHF 3302 or COT 3100C, or C.I.	√	Spring	3(3,0)
MAP 4103	Mathematical Modeling I	MAP 2302 and MAS 3105 or MAS 3106, or C.I.	√	Spring	3(3,0)
MAP 4113	Probability, Random Processes and Applications	MAC 2313	√	Occasional	3(3,0)
MAP 4153	Vector and Tensor Analysis	MAS 3105 or MAS 3106, and MAP 2302, or C.I.	√	Fall	3(3,0)
MAP 4303	Ordinary Differential Equations II	MAP 2302 and MAS 3105 or MAS 3106, or C.I.	√	Occasional	3(3,0)

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MAP 4341	Introduction to Partial Differential Equations	MAP 2302 and MAS 3105 or MAS 3106, or C.I.	√	Occasional	3(3,0)
MAP 4371	Numerical Methods for Differential Equations	MAC 2313, MAP 2302, MAS 3105 or MAS 3106, COP 3223, or C.I.	√	Occasional	3(3,0)
MAP 4384	Numerical Methods for Computational Sciences	MAP 2302, MAS 3105 or MAS 3106, COP 3223, or C.I.	√	Spring	3(3,0)
MAP 4484	Mathematical Biology I	MAP 2302, MAS 3105 or MAS 3106, or C.I.	√	Occasional	3(3,0)
MAP 4494	Mathematical Biology II	MAP 4484	√	Occasional	3(3,0)
MAP 4171	Optimization	MAC 2313, MAP 2302, MAS 3105 or MAS 3106, or C.I.	√	Occasional	3(3,0)
MAP 4934	Topics in Applied Mathematics	MAP 2302, MAS 3105, or C.I.	√	Occasional	3(3,0)
MAS 3105	Matrix and Linear Algebra	MAC 2312 or C.I.	√	Fall, Spring	4(4,0)
MAS 3106	Linear Algebra	MHF 3302, MAS 3105, or C.I.	√	Fall, Spring	4(4,0)
MAS 3203	Introduction to Number Theory	MHF 3302 or C.I.	√	Spring	3(3,0)
MAS 4301	Abstract Algebra I	MHF 3302, MAS 3106, or C.I.	√	Fall	3(3,0)
MAS 4302	Abstract Algebra II	MAS 4301 or C.I.	√	Spring	3(3,0)
MCB 3020C	General Microbiology	BSC 2010C and CHM 2210	√	Fall, Spring	5(3,4)
PCB 3023	Molecular Cell Biology	CHM 2210 and "C" or better in BSC 2010C and PCB 3063	√	Fall, Spring	3(3,0)
PCB 3044	Principles of Ecology	CHM 2045C/CHM 2041 and "C" or better in BSC 2010C and BSC 2011C, or C.I.	√	Fall	3(3,0)
PCB 3063	Genetics	CHM 2046 and a "C" (2.0) or better in BSC 2010C, or C.I.	√	Fall, Spring	3(3,0)
PCB 3703C	Human Physiology	BSC 2010C, CHM 1032 or CHM 2045C	√	Fall, Spring	4(3,3)
PCB 4723	Animal Physiology	A "C" OR better in PCB 3023 or C.I.	√	Fall	4(3,0)
PHY 4324	Electricity and Magnetism II	PHY 3323	√	Spring	3(3,0)
PHY 4424	Optics	PHY 3101, PHY 3323	√	Occasional	3(3,0)
PHY 4445	Lasers	PHY 3101, MAP 2302, PHY 4424 or C.I.	√	Spring	3(3,0)
PHY 4604	Wave Mechanics I	PHZ 3113 and PHY 3220	√	Fall	3(3,0)
PHY 4605	Wave Mechanics II	PHY 4604	√	Spring	3(3,0)
ZOO 3733C	Human Anatomy	BSC 2010C or equivalent	√	Fall, Spring	4(3,3)
ZOO 3744	Neurobiology	BSC 2010C	√	Fall, Spring	3(3,0)

**\*\*Approval for courses not listed here must be obtained from the MAE Department Associate Chair\*\***

**Please keep in mind that initially some courses are restricted by major.  
See "Class Notes" on MyUCF for more information regarding when you can register**

*Updated on 1/25/2022*