RECOMMENDED COURSES FOR INCOMING GRADUATE STUDENTS

Suggested: 3 courses + MAE 801 (required seminar course)

Note: All course offerings, including MAE 589 (Special Topics), are subject to change each semester. Please consult the current semester's class search for up-to-date offerings.

	Topical Area	If starting in the FALL		If starting in the SPRING	
Mostly AE type courses but certainly open to ME's	**Aerodynamics & Applied Aerodynamics**	MAE 550 MAE 551 MAE 561 MA 405	Foundations of Fluid Dynamics Airfoil Theory Wing Theory Introduction to Linear Algrebra	MAE 553 MAE 554 MA 405	Compressible Fluid Flow Hypersonic Aerodynamics Introduction to Linear Algrebra
	Aerospace Propulsion	MAE 550 MAE 504 MA 501	Foundations of Fluid Dynamics Fluid Dynamics of Combustion I Adv Mathmatics for Engineers & Sci I	MAE 553 MAE 550 MA 501	Compressible Fluid Flow Foundations of Fluid Dynamics Adv Mathmatics for Engineers & Sci I
	Computational Fluid Dynamics	MAE 550 MAE 560 MA 405 or 501*	Foundations of Fluid Dynamics Computat Fluid Mech & Heat Transfer Intro to Linear Algrebra OR Adv Math for Engineers & Sci I	MAE 550 MAE 553 MA 405 or 501*	Foundations of Fluid Dynamics Compressible Fluid Flow Intro to Linear Algrebra OR Adv Math for Engineers & Sci I
	Dynamics & Design of Spacecraft & Systems	MAE 511 MA 501	Adv Dynamics with Applications to Aerospace Systems Adv Mathmatics for Engineers & Sci I	MAE 534 MAE 521 MAE 535 MA 501	Mechatronics Design Linear Control & Design for MIMO Systems Design of Electromechanical Systems Adv Mathmatics for Engineers & Sci I
	Flight Dynamics & Control	MAE 551 MAE 525 MAE 561 MA 405	Airfoil Theory Adv Flight Vehicle Stability & Control Wing Theory Introduction to Linear Algrebra	MAE 521 MAE 535 MA 405 or 501*	Linear Control & Design for MIMO Systems Design of Electromechanical Systems Intro to Linear Algrebra OR Adv Math for Engineers & Sci I
	Multifunctional Materials & Smart Structures	MAE 541 MAE 539 MAE 546	Advanced Solid Mechanics I Advanced Materials Photonic Sensor Applications in Structure	MAE 538 MAE 535 MAE 589 MAE 537 MA 501	Smart Structures and Materials Design of Electromechanical Systems Special Topics - Struct Health Monitoring Mechanics of Composite Structures Adv Mathmatics for Engineers & Sci I
Mostly ME type courses but certainly open to AE's	**Applied Mechanics**	MAE 511 MAE 541 MAE 533 MA 501	Adv Dynamics with Applications to Aerospace Systems Advanced Solid Mechanics I Finite Element Analysis I Adv Mathmatics for Engineers & Sci I	MAE 537 MAE 543 MA 501	Mechanics of Composite Structures Fracture Mechanics Adv Mathmatics for Engineers & Sci I
	Bio Mechanics	MAE 541 MA 501	Advanced Solid Mechanics I Adv Mathmatics for Engineers & Sci I	MAE 538 MAE 537 MAE 550 MA 501	Smart Structures and Materials Mechanics of Composite Structures Foundations of Fluid Dynamics Adv Mathmatics for Engineers & Sci I
	Combustion	MAE 504 MAE 505 MA 501	Fluid Dynamics of Combustion I Heat Transfer Theory and Applications Adv Mathmatics for Engineers & Sci I	MAE 501 MAE 550 MA 501	Advanced Engineering Thermodynamics Foundations of Fluid Dynamics Adv Mathmatics for Engineers & Sci I
	Design & Manufacturing	MAE 541 MAE 533 MAE 742 MAE 501	Advanced Solid Mechanics I Finite Element Analysis I Mech Design for Automated Assembly Advanced Engineering Thermodynamics	MAE 544 or 545 MAE 535 MAE 534 MA 501	Real Time Robotics OR Metrology for Precision Manufacturing Design of Electromechanical Systems Mechatronics Design Adv Mathmatics for Engineers & Sci I
	Dynamic Systems & Control	MAE 513 MA 501	Principles of Structural Vibration Adv Mathmatics for Engineers & Sci I	MAE 521 MAE 534 MAE 535 MA 501	Linear Control & Design for MIMO Systems Mechatronics Design Design of Electromechanical Systems Adv Mathmatics for Engineers & Sci I
	Energy Conversion & Systems	MAE 504 MAE 505 MA 501	Fluid Dynamics of Combustion I Heat Transfer Theory and Applications Adv Mathmatics for Engineers & Sci I	MAE 501 MAE 589 MA 501	Advanced Engineering Thermodynamics Special Topics - Solar Energy Adv Mathmatics for Engineers & Sci I
	Experimental Mechanics	MAE 541 MAE 546 MA 501	Advanced Solid Mechanics I Photonic Sensor Applications in Structure Adv Mathmatics for Engineers & Sci I	MAE 537 MAE 545 MA 501	Mechanics of Composite Structures Metrology for Precision Manufacturing Adv Mathmatics for Engineers & Sci I
	Fluid Dynamics	MAE 504 MAE 505 MAE 550 MA 501	Fluid Dynamics of Combustion I Heat Transfer Theory and Applications Foundations of Fluid Dynamics Adv Mathmatics for Engineers & Sci I	MAE 501 MAE 550 MA 501	Advanced Engineering Thermodynamics Foundations of Fluid Dynamics Adv Mathmatics for Engineers & Sci I
	Heat Transfer	MAE 504 MAE 505 MA 501	Fluid Dynamics of Combustion I Heat Transfer Theory and Applications Adv Mathmatics for Engineers & Sci I	MAE 550 MAE 501 MA 501	Foundations of Fluid Dynamics Advanced Engineering Thermodynamics Adv Mathmatics for Engineers & Sci I
	Mechanics of Materials	MAE 541 MAE 533 MAE 539	Advanced Solid Mechanics I Finite Element Analysis I Advanced Materials	MAE 538 MAE 543 MAE 537 MA 501	Smart Structures and Materials Fracture Mechanics Mechanics of Composite Structures Adv Mathmatics for Engineers & Sci I
	Micro, Nano & MEMS	MAE 589 MA 501	Special Topics - Continuum Thermo-Mechanics (not yet offered) Adv Mathmatics for Engineers & Sci I	MAE 589 MA 501	Special Topics - Nanotechnology (not yet offered) Adv Mathmatics for Engineers & Sci I
	Vibration & Acoustics	MAE 513 MAE 550 or 541 MA 501	Principles of Structural Vibration 550 Foundations of Fluid Dynamics **if interested in fluids** OR 541 Advanced Solid Mechanics **if interested in solids** Adv Mathmatics for Engineers & Sci I	MAE 518 MAE 550 or 541 MA 501	Acoustic Radiation I 550 Foundations of Fluid Dynamics **if interested in fluids** OR 541 Advanced Solid Mechanics **if interested in solids** Adv Mathmatics for Engineers & Sci I

* In this case the choice between 405 and 501 is determined based on whether the student has had linear agebra. If not, we recommend 405.