

Core	Mechanics (3 hours)
	AEM 500 Intermediate Fluid Mechanics AEM 546 Intermediate Solid Mechanics AEM/ME 562 Intermediate Dynamics
	Math (3 hours)
	GES 551 Matrix and Vector Analysis GES 554 Partial Differential Equations AEM 548 Stochastic Mechanics

Courses relevant to Areas of Interest	Aerodynamics/Fluids	Aero-structures/Solids
	AEM 500 Intermediate Fluid Mechanics	AEM 530 Continuum Mechanics
	AEM 508 Propulsion	AEM 535 Applied FEM
	AEM 513 Compressible Flow	AEM 546 Intermediate Solid Mechanics
	AEM 514 Experimental Aerodynamics	AEM 548 Stochastic Mechanics
	AEM 516 Helicopter Theory	AEM 552 Composite Materials
	AEM 520 CFD	AEM 553 Multi-scale Analysis: Composites
	AEM 530 Continuum Mechanics	AEM 555 Non-destructive Evaluation
	AEM 548 Stochastic Mechanics	AEM 574 Structural Dynamics
	AEM 575 Aeroelasticity	AEM 575 Aeroelasticity
	AEM 606 Physical Gas Dynamics	AEM 635 Finite Element Methods
	AEM 614 Airfoil and Wing Theory	AEM 637 Elasticity
	AEM 616 Rotorcraft Aeromechanics	AEM 638 Introduction to Experimental Mechanics
	AEM 621 Viscous Flow	AEM 644 Engineering Fracture Mechanics
	AEM 622 Turbulent Flow	AEM 648 Theory of Plasticity
	AEM 624 Hypersonic Flow	AEM 649 Fatigue Analysis
		AEM 655 Advanced Composite Materials
		AEM 675 Advanced FEA
		AEM 685 Engineering Optimization
	Dynamics/Control/Guidance/Navigation	Space Systems/Propulsion
	AEM 518 Uncrewed Aircraft Systems	AEM 500 Intermediate Fluid Mechanics
	AEM 525 Spacecraft Dynamics and Control	AEM 508 Propulsion
	AEM/ME 562 Intermediate Dynamics	AEM 525 Spacecraft Dynamics and Control
	AEM 566 Optimal Control and Estimation	AEM 528 Space Propulsion
	AEM 569 Orbital Mechanics	AEM/ME 562 Intermediate Dynamics
	AEM/ME 570 Mechanical Vibrations	AEM 566 Optimal Control and Estimation
	AEM 574 Structural Dynamics	AEM 569 Orbital Mechanics
	AEM 575 Aeroelasticity	AEM 582 Space Systems
	AEM 616 Rotorcraft Aeromechanics	AEM 584 Space Environment
	AEM 662 Multi-body Dynamics	AEM 589 Space Law
	AEM 667 Navigation and Targeting Tracking	AEM 662 Multi-body Dynamics
	AEM 668 Advanced Flight Dynamics and Control	AEM 669 Advanced Astrodynamics
	AEM 669 Advanced Astrodynamics	AEM 685 Engineering Optimization
	AEM 685 Engineering Optimization	
Common Math and Elective Courses	Common Math-credit Courses	Common Electives
	GES 500 or ST 560 or MATH 551 or MATH 554: <i>Courses in statistics</i>	ME 509 Intermediate Heat Transfer
	GES 551 Matrix and Vector Analysis	ME 511 Computational Heat Transfer and Fluid Flow
	GES 553 Ordinary Differential Equations	ME 514 Principles of Combustion
	GES 554 Partial Differential Equations	ME 517 Sustainable Energy
	GES 555 Nonlinear PDE	ME 520 Gas Turbines
	AEM 548 Stochastic Mechanics	ME 540 Failure of Engineering Materials
	ME 501 Mechanical Engineering Analysis	ME 570 Mechanical Vibrations
	ST 531 Data Mining	ME 571 Fundamental of Acoustics
	ST 561 Applied Design of Experiments	ME 575 Control Systems Analysis
	MATH 511 Numerical Analysis I	ME 577 Advanced Linear Controls
	MATH 520 Linear Optimization Theory	ME 583 Additive Manufacturing
	MATH 572 Linear Algebra	
	MATH 583 Complex Analysis I	
	Some courses may have pre-requisites. Consult with the course home department. Other courses may be suitable for elective credit if relevant to our program. Consult with your research advisor. Most engineering and science related programs at UA do not have a distance program, thus their courses are not available for our distance students.	

Key	
	Mechanics Core Course
	Math Core Course