Course Offerings	s   Course offer	ings subject to change pending enrollment and instructor	availal	bility											
				2025	2026	2026	2026	2027	2027	2027	2028	2028	2028	2029	2029
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Course Number	Slash / Cross	Description	шве			'n			Ŀ			'n			Ŀ
course number	Listed	Description	пкз	_	ing	'nm	_	ing	nme	_	ing	Ĕ.	_	ing	Ш.
				Fal	Spr	Sur	Fal	Spr	Sur	Fal	Spr	Sur	Fal	Spr	Sur
AEM 121		Intro to Aerospace Engineering	1	х			Х			х			х		
ENGR 104		Foundations in Engineering	3	х	х		х	х		х	х		х	х	
AEM 201		Statics	3	Х	Х	Х	Х	Х	Х	Х	Х	х	Х	Х	х
AEM 249		Algorithms	3	х	х		Х	Х		Х	х		х	Х	
AEM 250		Mechanics of Materials	3	х	х	х	х	х	х	х	х	х	х	х	х
AEM 251		Mechanics of Materials Laboratory	1	v	v	v	v	v	v	v	v	v	v	Y	x
AEM 264			3	x	×	Ŷ	x	x	x	× ×	v	Ŷ	x	x	x
AEM 211		Eluid Moshanics	2	v	v	v	v	v	v	v	v	Ŷ	v	v	×
AEIWI 311			2	×	×	^	~	~	^	×	~	^	~	~	^
AEIVI 313		Aerodynamics	3	~	~		~	~		~	~		~	~	
AEM 341		Aerospace Structures	3	х	х		х	х		х	х		х	х	
AEM 351		Aerospace Structures Laboratory	1	х	х		Х	Х		Х	Х		Х	Х	
AEM 360		Astronautics	3	Х						Х					
AEM 368		Flight Mechanics	3		Х	Х		Х	Х		Х	х		Х	х
AEM 395		Professional Development: F24 Catalog	3	Х			Х			Х			Х		
AEM 402		Integrated Aerospace Design I	3	Х			Х			Х			Х		
AEM 404		Integrated Aerospace Design II	3		Х			х			х			х	
AEM 408	AEM 508	Propulsion Systems	3	х			Х			Х			Х		
AEM 413	AEM 513	Compressible Flow	3		х			х			х			Х	
AEM 420		CFD	3	х			х			Х			Х		
AEM 451		Aircraft Structural Design	3		х			х			х			Х	
AEM 461		Computational Methods for Aerospace Strucutres	3	1	х			х			х			Х	
AEM 468		Flight Dynamics & Control	3	х			х			Х			Х		
AEM 491/492		Special Problems	1-6		•	•	In	struct	or/adv	visor a	pprove	ed			
AEM 493		Special Topics	3				In	struct	or/adv	visor a	pprove	ed			
AEM 495		Professional Development: Pre-F24 Catalog	3	×			TBD		,		renla	ced wit	th AF™	/ 395	
AFM 496/497		Honors Special Topics	3	^				struct	or/adv	isor a	nprove	ed be		200	-
AEM 500		Intermediate Fluid Mechanics	3		y			y			y			У	
AEN 500	AENA 414	Eventimental Acrodynamics	3		^		Y	^			^		v	~	
AEM 510	AEM 410	Lapenmental Aerouyfidmits	3			<u> </u>		v			<u> </u>	<u> </u>		v	
ACIVI 310	ACIVI 410	Hencopter meory	3	<u> </u>				X			<u> </u>			X	
AEM 518		Uncrewed Aircraft Systems	3	GY				х			GY			х	
AEM 520		CFD	3		Х						Х				
AEM 525	AEM 425	Spacecraft Dynamics and Control	3					Х						Х	
AEM 528	AEM 428	Space Propulsion	3		Х						Х				
AEM 530		Continuum Mechanics	3	Х						Х					
AEM 535		Applied FEM	3				х						х		
AEM 546	AEM 446	Intermediate Solid Mechanics	3		Х			Х			Х			Х	
AEM 548	AEM 448	Stochastic Mechanics	3				Х						Х		
AEM 552	AEM 452	Composite Materials	3				х						х		
AEM 553	AEM 453	Multi-Scale Analysis: Composites	3		Х						Х				
AEM 555	AEM 455	Non-Destructive Evaluation	3	х						х					
AEM/ME 562		Intermediate Dynamics (alt w/ ME)	3	х			ME			х			ME		
AEM 566		Ontimal Control and Estimation	3				x						x		
AEM 569	AEM 469	Orbital Mechanics	3	v			~			v			~		
AEIVI 305	AEIVI 405		2	~						A Schor	lulod k	N/ MAE			
AEIVI/IVIE 570	AEIVI/IVIE 470		3	^			v	-		Scriet	Juleu I	JY IVIE	v		
AEIVI 574	AEIVI 474		3				~	~					^		
AEM 575	AEM 475	Fund of Aeroelasticity	5					X						X	
AEM 582	AEM 482	Space Systems	3					Х						Х	
AEM 584	AEM 484	Space Environments	3	х						Х					
AEM 588	AEM 488	Advanced Space Propulsion & Power	3		-					-					
AEM 589	AEM 489	Space Law	3					Х						Х	
AEM 591/592		Special Problems	1-6				In	struct	or/adv	visor a	pprove	ed			
AEM 593		Special Topics (P/F)	3				In	struct	or/adv	risor a	pprove	ed			
AEM 594		Special Projects	1-6				In	struct	or/adv	visor a	pprove	ed			
AEM 598		Non-Thesis Research	1-3				In	struct	or/adv	isor a	pprove	ed			
AEM 599		Thesis Research	1-12				In	struct	or/adv	visor a	pprove	ed			
AEM 606		Physical Gas Dynamics	3	х						Х					
AEM 614		Airfoil & Wing Theory	3		Х						Х				
AEM 616		Rotorcraft Aeromechanics	3												
AEM 621		Viscous Flow	3	х						Х					
AEM 622		Turbulent Flow	3	1				х						Х	
AEM 624		Hypersonic Flow	3	1			х						х		
AEM 625		Advanced CFD	3					_	_				_		
AEM 635		Finite Element Methods	3	x						х					
AEM 637		Theory of Elasticity	3		x						x				
AEM 638		Introduction Experimental Mechanics	3					х						х	
AEM 644		Engineering Fracture Mechanics	3	x									х		
AFM 648		Theory of Plasticity	3				x								
AFM 640		Fatigue Analysis	2				~			v		-			-
A ENA 665		raugue Allalysis	2					Y		~				v	
		Auvanceu composite Materials	3		~			~				<u> </u>		٨	_
AEM 662		Nulli-body Dynamics	3		X					v	X				
AEM 667		Inavigation and Target Tracking	3	х						Х		-			
AEM 668		Advanced Flight Dynamics & Control	3					х						Х	
AEM 669		Advanced Astrodynamics	3		Х						Х				
AEM 675 (691)		Advanced FEA	3		х						х				
AEM 685		Engineering Optimization	3	х						Х					
AEM 691		Special Problems	3	Instructor/advisor approved											
AEM 693		Special Topics (P/F)	3	Instructor/advisor approved											
AEM 694		Special Project	1-6	Instructor/advisor approved											
AEM 698		Non-Dissertation Research	1-3				In	struct	or/adv	visor a	pprove	ed			
AEM 699		Dissertation Research	1-12	1			In	struct	or/adv	visor a	pprove	ed			
GES 551		Matrix & Vector Analysis	3	х		Х	Х		Х	Х		х	Х		х
GES 553 (591)		ODE (could be listed as AEM 591)	3				х						х		
GES 554		PDF	3		х			x			х			x	
CEC EEF		Nonlinear PDF	3	У	~			~		y	~			~	
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TBD or Upon Sufficient Res Notes:

- Consult appropriate year catalog for curriculum requirements - All courses require sufficient enrollment to be offered

Course Descriptions: https://catalog.ua.edu/undergraduate/engineering/aerospace-mechanics/courses/

https://catalog.ua.edu/graduate/engineering/aerospace-mechanics/#coursestextcontainer

Program Requirements: https://catalog.ua.edu/undergraduate/engineering/aerospace-mechanics/bs/#text

https://catalog.ua.edu/graduate/engineering/aerospace-mechanics/#programs

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				
	Math (3 hours of an additional approved course)				

	Aerodynamics/Fluids	Aero-structures/Solids						
as of Interest	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						
e.	AEM 625 Advanced CFD	AEM 655 Advanced Composite Materials						
A O		AEM 675/691 Advanced FEA						
ţ		AEM 685 Engineering Optimization						
an	Dynamics/Control/Guidance/Navigation	Space Systems/Propulsion						
ev	AEM 518 Uncrewed Air Vehicles	AEM 500 Intermediate Fluid Mechanics						
<u>l</u> e	AEM 525 Spacecraft Dynamics and Control	AEM 508 Propulsion						
es	AEM/ME 562 Intermediate Dynamics	AEM 525 Spacecraft Dynamics and Control						
Cours	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 588 Advanced Space Propulsion						
	AEM 667 Navigation and Targeting Tracking	AEM 589 Space Law						
	AFM 668 Advanced Flight Dynamics and Control	AEM 662 Multi-body Dynamics						
		AFM 669 Advanced Astrodynamics						
	AEM 685 Engineering Ontimization	AFM 685 Engineering Ontimization						
	ALW 005 Lighteening Optimization	Active 065 Engineering Optimization						
	Common Math gradit Courses	Common Floatives						
on Math and Elective Courses	GFS 500 or ST 560 or MATH 551 or MATH 554: Courses in	ME 509 Intermediate Heat Transfer						
	statistics	ME 511 Computational Heat Transfer and Eluid Flow						
	GES 551 Matrix and Vector Analysis	ME 514 Principles of Compustion						
	AEM E01/GES EE2 Ordinary Differential Equations	ME 517 Sustainable Energy						
	GES EE4 Partial Differential Equations	ME 517 Sustainable Energy						
		ME 540 Failure of Engineering Materials						
	AEM 548/GES 548 Stochastic Mechanics							
	ME 501 Mechanical Engineering Analysis	ME 575 Control Systems Analysis						
	ST 531 Data Mining	ME 577 Advanced Linear Controls						
	ST 561 Applied Design of Experiments	ME 583 Additive Manufacturing						
	MATH 511 Numerical Analysis I							
	MATH 520 Linear Optimization Theory							
Ĕ	MATH 572 Linear Algebra							
Ĩ	MATH 583 Complex Analysis I							
ő	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.							
	programs at on ao not nuve a distance program, thas then courses are not available for our distance stadents.							

Кеу

Mechanics Core Course Math Core Course