BS AEROSPACE ENGINEERING
2021-2022

This document displays only your course requirements at the time of publication of the catalog. You must use your Degree Progress Report to track all your graduation requirements.

Note: No Major, Support or Concentration courses may be selected as credit/no credit.

MAJOR COURSES		
AERO 121	Aerospace Fundamentals	2
AERO 215	Introduction to Aerospace Design	2
AERO 220	Aerospace Systems Engineering & Integration	1
AERO 299	Aerospace Thermodynamics	4
AERO 300	Aerospace Engineering Analysis	5
AERO 302	Aerospace Fluid Mechanics	4
AERO 303	Aerospace Gas Dynamics and Heat Transfer	4
AERO 320	Fundamentals of Dynamics and Control	4
AERO 321	Experimental Sensors, Actuators and Control	1
AERO 331	Aerospace Structural Analysis I	4
AERO 350	Fundamentals of Systems Engineering	2
AERO 431	Aerospace Structural Analysis II	4
AERO 433	Experimental Stress Analysis	1
AERO 460	Aerospace Engineering Professional Prep	1
AERO 465	Aerospace Systems Senior Laboratory	1
CE 204 & CE 207 or CE 208	Mechanics of Materials I **and** Mechanics of Materials II Mechanics of Materials	5
EE 201 & EE 251	Electric Circuit Theory **and** Electric Circuits Laboratory	4
Concentration courses (see below)		40
Total Major Units		**89**

SUPPORT COURSES		
CHEM 124	General Chemistry for Physical Science and Engineering I (B1 & B3) [1]	4
IME 144	Introduction to Design and Manufacturing	4
MATE 210	Materials Engineering	3
MATH 141	Calculus I (B4) [1]	4
MATH 142	Calculus II (B4) [1]	4
MATH 143	Calculus III (Area B Electives) [1]	4
MATH 241	Calculus IV	4
MATH 244	Linear Analysis I	4
ME 211	Engineering Statics	3
ME 212	Engineering Dynamics	3
PHYS 141	General Physics IA (Area B Electives) [1]	4
PHYS 132	General Physics II	4
PHYS 133	General Physics III	4
STAT 312	Statistical Methods for Engineers (Upper-Division B) [1]	4
Total Support Units		**53**

GENERAL EDUCATION		
Area A English Language Communication and Critical Thinking		
A1	Oral Communication	4
A2	Written Communication	4
A3	Critical Thinking	4
Area B Scientific Inquiry and Quantitative Reasoning		
B1	Physical Science (4 units in Support) [1]	0
B2	Life Science	4
B3	One lab taken with either a B1 or B2 course	
B4	Mathematics/Quantitative Reasoning (8 units in Support) [1]	0
Upper-Division B (4 units in Support) [1]		0
Area B Electives (8 units in Support) [1]		0
Area C Arts and Humanities		
Lower-division courses in Area C must come from three different subject prefixes.		
C1	Arts	4
C2	Humanities	4
Lower-Division C Elective - Select a course from either C1 or C2.		4
Upper-Division C		4
Area D Social Sciences		
D1	American Institutions (Title 5, Section 40404 Requirement)	4
Area D Elective - Select either a lower-division D2 or upper-division D course.		4
Area E Lifelong Learning and Self-Development		
Lower-Division E		4
Area F Ethnic Studies		
Lower-Division F		4
Total GE Units		**48**
FREE ELECTIVES		**0**
TOTAL DEGREE UNITS		**190**

FOOTNOTES

[1] Required in Major or Support; also satisfies General Education (GE) requirement.

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Aeronautics Concentration		
AERO 306	Aerodynamics and Flight Performance	4
AERO 307	Experimental Aerodynamics	2
AERO 401	Propulsion Systems	5
AERO 405	Supersonic and Hypersonic Aerodynamics	4
AERO 420	Aircraft Dynamics and Control	4
AERO 443	Aircraft Design I	3
AERO 444	Aircraft Design II	3
AERO 445	Aircraft Design III	3
Aeronautics Approved Electives [1]		
Select from the following:		12
AERO 351	Introduction to Orbital Mechanics	
AERO 360	Creative Problem Solving in Engr Design 2	
AERO 355	Space Environments I	
AERO 356	Space Environments II	
AERO 406	Applied Computational Fluid Dynamics	
AERO 407	Reentry Aerodynamics	
AERO 408	Plasma Applications in Aerospace	
AERO 409	Flight Test	
AERO 421	Spacecraft Attitude Dynamics and Control	
AERO 425	Aircraft Performance	
AERO 432	Advanced Composite Structures Analysis	
AERO 434	Aerospace Structural Analysis III	
AERO 435	Aerospace Numerical Analysis	
AERO 450	Introduction to Aerospace Systems Engineering	
AERO 452	Spaceflight Dynamics II	
AERO 455	Introduction to Human Spaceflight	
AERO 446	Spacecraft Electrical and Electric Systems	
AERO 470	Selected Advanced Topics	
AERO 471	Selected Advanced Laboratory	
AERO 512	Aerospace Vehicle Software Application	
AERO 513	Applications of Unmanned Aircraft Systems	
AERO 515	Continuum Mechanics	
AERO 517	Multidisciplinary Design and Optimization	
AERO 519	Fundamentals of Vehicle Dynamics & Control	
AERO 522	Boundary-Layer Theory	
AERO 525	Computational Fluid Dynamics	
AERO 526	Spacecraft Thermal/Fluid Control	
AERO 528	Laminar Flow Aircraft Development	
AERO 532	Advanced Aerospace Composite Design	
AERO 533	Finite Elem for Aerospace Structural Analysis	
AERO 534	Aerospace Structural Dynamics Analysis	
AERO 535	Advanced Aerospace Structural Analysis	
AERO 540	Elements of Rocket Propulsion	
AERO 541	Air Breathing Propulsion	
AERO 542	Electric and Advanced Propulsion	
AERO 548	Complexity in Engineered Systems	
AERO 549	Systems Engineering Applications	
AERO 553	Advanced Control Theory	
AERO 557	Advanced Orbital Mechanics	
AERO 560	Advanced Spacecraft Dynamics and Control	
AERO 561	Vehicle Integration and Testing	
AERO 562	Space Operations	
AERO 565	Advanced Topics in Aircraft Design	
AERO 567	Launch Vehicle and Missile Design	
AERO 568	Aerodynamic Research and Development I	
AERO 569	Aerodynamic Research and Development II	
AERO 570	Selected Advanced Topics [2]	
AERO 571	Selected Advanced Topics Laboratory [2]	
Total Units		**40**

[1] Consultation with advisor is recommended prior to selecting Approved Electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

[2] May require a petition depending on the topic. Please consult with your advisor.

Astronautics Concentration		
AERO 351	Introduction to Orbital Mechanics	4
AERO 355	Space Environments I	3
AERO 356	Space Environments II	3
AERO 402	Spacecraft Propulsion Systems	5
AERO 421	Spacecraft Attitude Dynamics and Control	4
AERO 446	Spacecraft Electrical and Electric Systems	4
AERO 447	Spacecraft Design I	3
AERO 448	Spacecraft Design II	3
AERO 449	Spacecraft Design III	3
Astronautics Approved Electives [1]		
Select from the following:		8
AERO 306	Aerodynamics and Flight Performance	
AERO 360	Creative Problem Solving in Engr Design [2]	
AERO 405	Supersonic and Hypersonic Aerodynamics	
AERO 406	Applied Computational Fluid Dynamics	
AERO 407	Reentry Aerodynamics	
AERO 408	Plasma Applications in Aerospace	
AERO 409	Flight Test	
AERO 420	Aircraft Dynamics and Control	
AERO 425	Aircraft Performance	
AERO 432	Advanced Composite Structures Analysis	
AERO 434	Aerospace Structural Analysis III	
AERO 435	Aerospace Numerical Analysis	
AERO 450	Intro to Aerospace Systems Engineering	
AERO 452	Spaceflight Dynamics II	
AERO 455	Introduction to Human Spaceflight	
AERO 470	Selected Advanced Topics	
AERO 471	Selected Advanced Laboratory	
AERO 512	Aerospace Vehicle Software Application	
AERO 513	Applications of Unmanned Aircraft Systems	
AERO 515	Continuum Mechanics	
AERO 517	Multidisciplinary Design and Optimization	
AERO 519	Fundamentals of Vehicle Dynamics & Control	
AERO 522	Boundary-Layer Theory	
AERO 525	Computational Fluid Dynamics	
AERO 526	Spacecraft Thermal/Fluid Control	
AERO 528	Laminar Flow Aircraft Development	
AERO 532	Advanced Aerospace Composite Design	
AERO 533	Finite Elem for Aerospace Structural Analysis	
AERO 534	Aerospace Structural Dynamics Analysis	
AERO 535	Advanced Aerospace Structural Analysis	
AERO 540	Elements of Rocket Propulsion	
AERO 541	Air Breathing Propulsion	
AERO 542	Electric and Advanced Propulsion	
AERO 548	Complexity in Engineered Systems	
AERO 549	Systems Engineering Applications	
AERO 553	Advanced Control Theory	
AERO 557	Advanced Orbital Mechanics	
AERO 560	Advanced Spacecraft Dynamics and Control	
AERO 561	Vehicle Integration and Testing	
AERO 562	Space Operations	
AERO 566	Advanced Topics in Spacecraft Design	
AERO 567	Launch Vehicle and Missile Design	
AERO 568	Aerodynamic Research and Development I	
AERO 569	Aerodynamic Research and Development II	
AERO 570	Selected Advanced Topics [2]	
AERO 571	Selected Advanced Topics Laboratory [2]	
Total Units		**40**

[1] Consultation with advisor is recommended prior to selecting Approved Electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals. Only 4 units of 300-level coursework is allowed as an Approved Elective.

[2] May require a petition depending on the topic. Please consult with your advisor.