**Astronautics Concentration**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AERO 351</td>
<td>Introduction to Orbital Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>AERO 353</td>
<td>Spacecraft Environment</td>
<td>4</td>
</tr>
<tr>
<td>AERO 354</td>
<td>Space Environment Laboratory</td>
<td>2</td>
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<tr>
<td>AERO 402</td>
<td>Spacecraft Propulsion Systems</td>
<td>5</td>
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<tr>
<td>AERO 421</td>
<td>Spacecraft Attitude Dynamics and Control</td>
<td>4</td>
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<tr>
<td>AERO 446</td>
<td>Introduction to Space Systems</td>
<td>4</td>
</tr>
<tr>
<td>AERO 447</td>
<td>Spacecraft Design I</td>
<td>4</td>
</tr>
<tr>
<td>AERO 448</td>
<td>Spacecraft Design II</td>
<td>3</td>
</tr>
<tr>
<td>AERO 449</td>
<td>Spacecraft Design III</td>
<td>3</td>
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**Astronautics Approved Electives**

Select from the following:

- AERO 306: Aerodynamics and Flight Performance
- AERO 311: Aircraft Development History
- AERO 360: Creative Problem Solving in Engineering Design
- AERO 405: Supersonic and Hypersonic Aerodynamics
- AERO 406: Applied Computational Fluid Dynamics
- AERO 407: Reentry Aerodynamics
- 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: Introduction to Aerospace Systems Engineering
- AERO 452: Spaceflight Dynamics II
- AERO 470: Selected Advanced Topics
- AERO 510: Systems Engineering I
- AERO 511: Systems Engineering II
- 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 and Control
- AERO 522: Boundary-Layer Theory
- AERO 523: Turbulence
- 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 Elements 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 551: Global Positioning Satellite Navigation Systems
- 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 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
- AERO 571: Selected Advanced Topics Laboratory

Total units: 41

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. Require a petition.