### AEROSPACE ENGINEERING (AERO)

**College of Engineering and Mines**

Electrical and Computer Engineering (https://www.uaf.edu/cem/programs/electrical-engineering/)

907-474-6098

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered As Demand Warrants</th>
<th>Description</th>
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<tr>
<td>AERO F254</td>
<td>Unmanned Aircraft Systems (UAS) Investigation</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>An introductory analysis of unmanned air systems (UAS), including typical missions and performance expectations for various classes of UAS. Students investigate subsystem choices for a UAS and how these affect mission performance. Includes discussion of external factors impacting UAS design choices, including support infrastructure, flight operations and data requirements. <strong>Cross-listed with</strong> ME F254. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>AERO F256</td>
<td>Unmanned Aircraft Systems (UAS) Design</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>A multidisciplinary team of students will design, build, test and deliver an unmanned aircraft system (UAS) in support of university research mission requirements. Students will learn basic concepts related to the systems engineering design process. Graded events include team briefings, written reports, multimedia products and a finished UAS product. <strong>Prerequisites:</strong> AERO F254; ME F254. <strong>Cross-listed with</strong> CS F254 and ME F256. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>AERO F258</td>
<td>Unmanned Aircraft Systems (UAS) Operations</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>Covers the use of unmanned aircraft systems (UAS), sensors, and support infrastructure required to conduct a selected mission set. Emphasis is on mission analysis, planning, and conduct, including definition of requirements/constraints, identification of appropriate assets, flight planning considerations, and data analysis requirements. Teams coordinate resources for mission and report results. <strong>Cross-listed with</strong> CS F258; GEOS F258; ME F258. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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<tr>
<td>AERO F654</td>
<td>UAS Systems Design</td>
<td>3</td>
<td>Offered As Demand Warrants</td>
<td>Course covers the analysis of unmanned air vehicle subsystems, including support infrastructure elements comprising an unmanned air system. Course contains mission planning considerations, including flight planning and data requirements. Focus is on remote sensing missions which may be accomplished by appropriate UAS. Students participate in a UAS design/build/fly workshop. <strong>Prerequisites:</strong> Graduate Standing. <strong>Lecture + Lab + Other:</strong> 3 + 0 + 0</td>
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**AERO F656** Aerospace Systems Engineering

3 Credits

Offered As Demand Warrants

A multidisciplinary team of students will perform a preliminary design study of a major aerospace system. Design considerations will include requirements for project management, aerospace vehicle design, power, attitude control, thermal control, communications, computer control and data handling.

**Prerequisites:** Graduate Standing.

**Cross-listed with** ME F656.

**Lecture + Lab + Other:** 3 + 0 + 0

**AERO F658** Unmanned Aircraft Systems (UAS) Operations

3 Credits

Offered Spring

Covers application of unmanned aircraft systems (UAS) to satisfy scientific research or public service missions. Students analyze mission requirements and recommend appropriate UAS vehicles, subsystems, sensors and data analysis tools to accomplish a specified mission. Students design mission profiles, conduct representative missions, produce required data products and present mission results.

**Prerequisites:** Graduate Standing.

**Cross-listed with** CS F658.

**Lecture + Lab + Other:** 3 + 0 + 0