

Memorandum

To: The Faculty of the College of Engineering

From: The School of Aeronautics and Astronautics

Date: 2024

Re: Fast track EFD – Removing Business Rule from AAE Curriculum

Change to BSAAE Curriculum: Removing the AAE Business Rule

The Business Rule was added to the AAE curriculum through EFD 8-05. The intent was for students to take at least 3 credits of course work focused on Economics, Business or Entrepreneurship to provide the economic context of engineering which the faculty think is a necessary part of a BSAAE degree.

The business rule required AAE students to take a business focused course within the AAE Plan of Study. Students chose the course from a prescribed list of courses, with the majority choosing ECON25100. These courses counted for either a general education or technical elective in the AAE Plan of Study. Removing this rule does not remove a course or requirement from the plan of study. Students will still be required to complete the same specific number of General Education and Technical Electives.

Reasons: The business rule was created before the University Core Curriculum (UCC). The Core now ensures a broad general education foundation, including in behavioral and social sciences (with ECON 25100 being one of the approved courses), obviating the need for the business rule.

William A. Crossley
Uhrig & Vournas Head of Aeronautics and Astronautics
Professor of Aeronautics and Astronautics

Supplemental pages included to reflect what is being removed from the BSAAE Degree Requirements. Green highlight is used showing what verbiage will be removed.

Aeronautical and Astronautical Engineering, BSAAE

Location(s): [West Lafayette](#)

About the Program

The Aeronautical and Astronautical Engineering program is accredited by the Engineering Accreditation Commission of [ABET](#) and meets the following criteria for aerospace engineering programs:

“Aerospace engineering programs or similarly named engineering programs, which combine aeronautical engineering and astronautical engineering, must include all curricular topics in sufficient depth for engineering practice in one of the areas - aeronautical engineering or astronautical engineering as described above - and, in addition, similar depth in at least two topics from the other area.”

The field of aeronautical and astronautical engineering includes the challenging problems encountered in the design and operation of many types of aircraft, missiles, and space vehicles and puts a constant demand on research and development groups for an even better understanding of basic physical phenomena.

Aeronautical education has existed on at least a small scale at Purdue University since about 1920. Aeronautical Engineering degrees were first offered at Purdue by the School of Mechanical & Aeronautical Engineering during WWII, and the first B.S. Degrees were awarded in 1943. The School of Aeronautics was established as a separate entity on July 1, 1945. (For a complete history visit the School's [history page](#).)

During the first sixty years of its existence, the School of Aeronautics and Astronautics has awarded 5,824 BS degrees, 1,439 MS degrees and 474 PhD degrees. These graduates have made [significant contributions](#) to the aerospace field, and have held positions of high responsibility in government and private industry. Twenty-three graduates of Purdue have become astronauts, and of these, fourteen have been graduates of the School of Aeronautics and Astronautics.

The Aeronautical and Astronautical Engineering curriculum concentrates on the fundamental subject areas necessary to the research, development, design, and operation of the aerospace industry. The curriculum is designed to emphasize the disciplines of aerodynamics, propulsion, structures, dynamics, and control, and further provides design courses to integrate these disciplines into the design of flight vehicles that will perform the required mission. A strong background in mathematics and physics is required to pursue these disciplines, and extensive use of computers and programming skills is a necessity.

The future holds many interesting challenges. The record shows that our graduates have demonstrated their ability to provide technical leadership in a variety of successfully completed projects. A degree from Purdue University in the School of Aeronautics and Astronautics promises to prepare our future graduates for the 21st century in the aerospace field.

[School of Aeronautics and Astronautics](#)

[Aeronautical and Astronautical Engineering Major Change \(CODO\) Requirements](#)

Degree Requirements

130 Credits Required

AAE Engineering Major Courses (56 credits)

- [AAE 20000 - Undergraduate Sophomore Seminar](#) **Credits:** 0.00
- [AAE 20300 - Aeromechanics I](#) **Credits:** 3.00 ♦ (C- or better)
- [AAE 20400 - Aeromechanics II](#) **Credits:** 3.00 ♦ (C- or better)
- [AAE 20401 - Aeromechanics II Laboratory](#) **Credits:** 1.00
- [AAE 25100 - Introduction To Aerospace Design](#) **Credits:** 3.00 ♦
- [AAE 30000 - Undergraduate Junior Seminar](#) **Credits:** 0.00
- [AAE 30100 - Signal Analysis For Aerospace Engineering](#) **Credits:** 3.00
- [AAE 33300 - Fluid Mechanics](#) **Credits:** 3.00
- [AAE 33301 - Fluid Mechanics Laboratory](#) **Credits:** 1.00
- [AAE 33400 - Aerodynamics](#) **Credits:** 3.00
- [AAE 34000 - Dynamics And Vibrations](#) **Credits:** 3.00
- [AAE 35200 - Structural Analysis I](#) **Credits:** 3.00
- [AAE 36400 - Control System Analysis](#) **Credits:** 3.00
- [AAE 36401 - Control Systems Laboratory](#) **Credits:** 1.00
- [AAE 40000 - Undergraduate Senior Seminar](#) **Credits:** 1.00

- [AAE 33401 - Aerodynamics Laboratory](#) **Credits:** 1.00 or
- [AAE 35201 - Structural Analysis I Laboratory](#) **Credits:** 1.00

- [AAE 33800 - Thermal Sciences](#) **Credits:** 3.00 (C- or better) or
- [AAE 33900 - Aerospace Propulsion](#) **Credits:** 3.00

- [AAE 42100 - Flight Dynamics And Control](#) **Credits:** 3.00 or
- [AAE 44000 - Spacecraft Attitude Dynamics](#) **Credits:** 3.00

- [AAE 45000 - Spacecraft Design](#) **Credits:** 3.00 or
- [AAE 45100 - Aircraft Design](#) **Credits:** 3.00

- AAE Engr Specialization - Credit Hours: 9.00 (see Supplemental Information)
- AAE Selectives - Credit Hours: 6.00 (see Supplemental Information)

Other Program/Departmental Requirements (77-89)

First Year Engineering Requirements (29-39 credits)

Click here for [First-Year Engineering](#) Requirements

If pursuing Bachelor of Science in Aeronautical and Astronautical Engineering, CS 15900 - Prog Appl for Engineers is preferred, but not required to complete the First Year Engineering program.

- Requirement #1 - Intro to Engineering I (2-4 credits)
- Requirement #2 - Intro to Engineering II (2-4 credits)
- Requirement #3 - Calculus I (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #4 - Calculus II (4-5 credits) (*satisfies Quantitative Reasoning for core*)
- Requirement #5 - Chemistry I (4-6 credits) (*satisfies Science #1 for core*)
- Requirement #6 - Physics (4 credits) (*satisfies Science #2 for core*)
- Requirement #7 - First-Year Engineering Selective (3-4 credits)
- Requirement #8 - Written and Oral Communication (6 credits) (*could satisfy Written Communication, Information Literacy or Oral Communication for core*)

Other Departmental Requirements (30-35 credits)

- [MFET 16300 - Graphical Communication And Spatial Analysis](#) **Credits:** 2.00
- [CS 15900 - C Programming](#) **Credits:** 3.00 (may be taken in FYE) or
- [CS 17700 - Programming With Multimedia Objects](#) **Credits:** 4.00 or
- [CS 18000 - Problem Solving And Object-Oriented Programming](#) **Credits:** 4.00
- [MA 26100 - Multivariate Calculus](#) **Credits:** 4.00 ♦
- [MA 26500 - Linear Algebra](#) **Credits:** 3.00 ♦
- [MA 26600 - Ordinary Differential Equations](#) **Credits:** 3.00 ♦
- [MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences](#) **Credits:** 3.00 ♦
- [ME 20000 - Thermodynamics I](#) **Credits:** 3.00 ♦
- [PHYS 24100 - Electricity And Optics](#) **Credits:** 3.00 or
- [PHYS 27200 - Electric And Magnetic Interactions](#) **Credits:** 4.00
- [AAE Business Rule - Credit Hours: 3.00 \(can count for Technical Elective or General Education Elective depending on course taken\)](#)
- [AAE Technical Electives - Credit Hours: 3.00 \(can be satisfied with Business Rule course\)](#)
- [AAE Statistics Selective - Credit Hours: 3.00](#)

General Education Requirements (18 credits)

At least 6 credits from non-Introductory (30000-level or above OR from courses with a required pre-requisite in the same department.

- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)
- General Education IV - Credit Hours: 3.00 (can be satisfied by Business Rule Course)
- General Education V - Credit Hours: 3.00
- General Education VI - Credit Hours: 0.00-2.00
- AAE Communications Rule - Credit Hours: 3.00 (satisfies 3.00 credits of Non-Introductory General Education)

Supplemental List

Click here for [Aeronautical and Astronautical Engineering Supplemental Information](#)

Grade Requirements

To graduate, students must receive a C- or better in AAE 20300, AAE 20400, AAE 33800, all MA (Math) courses and all courses in First-Year Engineering.

GPA Requirements

- 2.0 Graduation GPA required for Bachelor of Science degree.
- AAE requires a minimum of a 2.0 for major GPA.

Course Requirements and Notes

Students may double count in the following areas:

- UCC: Humanities for General Education elective
- UCC: Behavioral/Social Science for General Education elective
- UCC: Science, Tech, and Society for either Technical elective or General Education elective
- **AAE Business Rule for either Technical elective or General Education elective**
- AAE Communications Rule for a Non-Introductory General Education elective
- Civics Literacy courses for a General Education elective
- Minor and certificate courses for Technical electives, General Education electives, AAE Statistics Rule, **AAE Business Rule**, AAE Communications Rule, math requirements, or AAE Specialization/Selectives

Students may not double count in the following areas:

- Technical electives for AAE Specialization/Selectives

Students are allowed to repeat courses, regardless of the grade, up to 3 attempts per University regulations.

Pass/No Pass Policy

- Only General Education and Technical electives may be taken in the Pass/No Pass grade mode. All other courses within the AAE Plan of Study are required to be taken for a grade.
- Students who do a semester or year-long study abroad exchange program are allowed to take AAE courses as Pass/No Pass during this program.

Transfer Credit Policy

If you are interested in registering for a course offered by a different institution, you should first look it up in [the Purdue Transfer Credit Database](#) to see how the credit will transfer back to Purdue. In order for the course to be used to meet AAE degree requirements, it must transfer as a Purdue equivalent course approved to meet the requirement. If the institution or course is not listed, it may mean your course has not been evaluated yet. Please see your advisor for additional information.

You must earn a “C–” or better in order for a course to be transferred. Please note however, that the grade will not transfer and there will be no impact on your Purdue GPA.

NOTE: courses listed as “#XXXX” are considered undistributed credit, or courses which do not have a Purdue equivalent. These courses cannot be used to meet AAE degree requirements. **AAE courses will be reviewed on case-to-case basis.**

Please see your academic advisor for approval. Once the course is completed, you must send your official transcript to Purdue so that your credit may be awarded. [Click here for instructions on sending your transcript to Purdue.](#)

NOTE: If you are an incoming transfer student, please work with your advisor to determine exactly how your previous courses might transfer.

University Requirements

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [University Senate Website.](#)

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)

- Science, Technology, and Society (STS)
- Written Communication (WC)

Civics Literacy Proficiency Requirement

The Civics Literacy Proficiency activities are designed to develop civic knowledge of Purdue students in an effort to graduate a more informed citizenry. For more information visit the [Civics Literacy Proficiency website](#).

To obtain the Civics Literacy Proficiency, students will complete an educational activity as part of their chosen Civics Literacy Pathway and pass the Purdue Civics knowledge test. The knowledge test can be completed at any time while the pathway is being perused. There are three different pathways:

- Civics Event pathway - Attend six approved civics-related events and pass the required exam; or
- Civics Literacy Podcast pathway - [Complete 12 podcasts](#) created by the Purdue Center for C-SPAN Scholarship & Engagement that use C-SPAN material and pass the required exam; or
- Approved course pathway - Complete [one of the following approved courses](#) and pass the required exam.

More details about each pathway and how to complete the requirement can be found on the Civics Literacy Student Dashboard in [myPurdue](#).

Upper Level Requirement

- Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of coursework required and approved for the completion of the degree. These courses are expected to be at least junior-level (30000+) courses.
- Students should be able to fulfill *most, if not all*, of these credits within their major requirements; there should be a clear pathway for students to complete any credits not completed within their major.

Sample First-Year Engineering Plan of Study

Fall 1st Year

- Requirement #1 - Intro to Engineering - Credit Hours: 2.00-4.00
- Requirement #3 - Calculus I - Credit Hours: 4.00-5.00
- Requirement #5 - Chemistry - Credit Hours: 4.00-6.00
- Requirement #8 - Written or Oral Communication - Credit Hours: 3.00-4.00

13-19 Credits

Spring 1st Year

- Requirement #2 - Intro to Engineering II - Credit Hours: 2.00-4.00
- Requirement #4 - Calculus II - Credit Hours: 4.00-5.00
- Requirement #6 - Physics - Credit Hours: 4.00
- Requirement #7 - First-Year Engineering Selective - Credit Hours: 3.00-4.00
- Requirement #8 - Written or Oral Communication - Credit Hours: 3.00-4.00

16-21 Credits

Aeronautical and Astronautical Engineering Program Requirements

Fall 2nd Year

- [AAE 20000 - Undergraduate Sophomore Seminar](#) Credits: 0.00
- [AAE 20300 - Aeromechanics I](#) Credits: 3.00 ♦
- [CS 15900 - C Programming](#) Credits: 3.00 (if not taken in FYE) or
- [CS 17700 - Programming With Multimedia Objects](#) Credits: 4.00 or
- [CS 18000 - Problem Solving And Object-Oriented Programming](#) Credits: 4.00
- [MA 26100 - Multivariate Calculus](#) Credits: 4.00 ♦
- [MA 26500 - Linear Algebra](#) Credits: 3.00 ♦
- General Education I - Credit Hours: 3.00 (satisfies Human Cultures: Behavioral/Social Science for core)

13-17 Credits

Spring 2nd Year

- [AAE 20400 - Aeromechanics II](#) Credits: 3.00 ♦
- [AAE 20401 - Aeromechanics II Laboratory](#) Credits: 1.00
- [AAE 25100 - Introduction To Aerospace Design](#) Credits: 3.00 ♦
- [MFET 16300 - Graphical Communication And Spatial Analysis](#) Credits: 2.00 (must be taken at the same time as AAE 25100)
- [MA 26600 - Ordinary Differential Equations](#) Credits: 3.00 ♦
- [ME 20000 - Thermodynamics I](#) Credits: 3.00 ♦
- [PHYS 24100 - Electricity And Optics](#) Credits: 3.00 or
- [PHYS 27200 - Electric And Magnetic Interactions](#) Credits: 4.00

18-19 Credits

Fall 3rd Year

- [AAE 30000 - Undergraduate Junior Seminar](#) Credits: 0.00
- [AAE 30100 - Signal Analysis For Aerospace Engineering](#) Credits: 3.00
- [AAE 33300 - Fluid Mechanics](#) Credits: 3.00
- [AAE 33301 - Fluid Mechanics Laboratory](#) Credits: 1.00
- [AAE 35200 - Structural Analysis I](#) Credits: 3.00
- [MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences](#) Credits: 3.00 ♦
- General Education II - Credit Hours: 3.00 (satisfies Human Cultures: Humanities for core)
- General Education III - Credit Hours: 1.00-3.00 (satisfies Science, Technology & Society for core)

17-19 Credits

Spring 3rd Year

- [AAE 33400 - Aerodynamics](#) Credits: 3.00
- [AAE 34000 - Dynamics And Vibrations](#) Credits: 3.00
- [AAE 36400 - Control System Analysis](#) Credits: 3.00

- [AAE 33401 - Aerodynamics Laboratory](#) **Credits:** 1.00 or
- [AAE 35201 - Structural Analysis I Laboratory](#) **Credits:** 1.00
- [AAE 33800 - Thermal Sciences](#) **Credits:** 3.00 or
- [AAE 33900 - Aerospace Propulsion](#) **Credits:** 3.00
- General Education IV - Credit Hours: 3.00
- General Education V - Credit Hours: 0.00-2.00 (2 credits needed if STS not taken for 3 credits)

16-18 Credits

Fall 4th Year

- [AAE 36401 - Control Systems Laboratory](#) **Credits:** 1.00
- [AAE 40000 - Undergraduate Senior Seminar](#) **Credits:** 1.00
- AAE Engr Specialization - Credit Hours: 3.00
- AAE Selectives - Credit Hours: 3.00
- Statistics Selective - Credit Hours: 3.00
- Business Rule - Credit Hours: 3.00 (can satisfy Technical Elective or General Education Selective)
- Technical Elective - Credit Hours: 3.00 (depending on Business Rule course taken)
OR
- General Education V - Credit Hours: 3.00 (depending on Business Rule course taken)

17 Credits

Spring 4th Year

- [AAE 42100 - Flight Dynamics And Control](#) **Credits:** 3.00 or
- [AAE 44000 - Spacecraft Attitude Dynamics](#) **Credits:** 3.00
- [AAE 45000 - Spacecraft Design](#) **Credits:** 3.00 or
- [AAE 45100 - Aircraft Design](#) **Credits:** 3.00
- AAE Engr Specialization/AAE Selectives - Credit Hours: 9.00
- AAE Communications Rule - Credit Hours: 3.00

18 Credits

Pre-Requisite Information

For pre-requisite information, log in to mypurdue.purdue.edu and click [here](#).

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program."

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements. Consultation with an advisor may result in an altered plan customized for an individual student. The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Comparative information about Purdue University and other U.S. educational institutions is also available through the [College Navigator tool](#), provided by the National Center for Education Statistics, and through the [U.S. Department of Education College Scorecard](#).
