



### List of Approved Math Courses for AEM Graduate Students

Students pursuing an MS or PhD degree in the Department of Aerospace Engineering and Mechanics must complete three hours of mathematics courses for the MSAEM degree and six hours for the PhD degree. Students should consult with their advisor or the graduate program coordinator (GPC) and develop a plan of study during the first semester of graduate school. The math courses should be completed in the first two semesters of the program as they are typically foundational for higher-level graduate courses and proper research practices. Except for AEM 548, AEM core and elective courses (500-589 and 600-689) do not count towards the math requirement.

The MSAEM math course and one of the PhD math courses must be from the following three:

- **GES 551** Matrix and Vector Analysis
- **GES 554** Partial Differential Equations
- **AEM 548** Stochastic Mechanics

The second PhD math course or courses used as electives for either program can be one of the following listed below. **Note:** not all departments offer courses online.

- **GES 500** Engineering Statistics *or* **ST 560** Statistical Methods *or* **MATH 551** Math Statistics with Application I *or* **MATH 554** Math Statistics
- **GES 553** Ordinary Differential Equations
- **GES 555** Nonlinear PDE
- **ME 501** Mechanical Engineering Analysis
- **MATH 510** or higher (these courses may have UG and graduate pre-reqs)
- **ST 531** Data Mining
- **ST 552** Applied Regression Analysis
- **ST 561** Applied Design of Experiments

At times, AEM will develop and offer a new applied math course under the AEM 591 designation and convert to GES over time. A student may request a course not on this list to apply towards the math requirement. The course must be approved by the student's dissertation, thesis, or culminating experience advisor and the Graduate Program Coordinator or the Department Head. Submit the request to the advisor. Requests must include:

#### ***UA course***

- The catalog course description and course syllabus; if the course has not been offered, then a syllabus must be approved prior to the offering of the course
- A statement by the student as to how the course fulfills the math requirement
- If AEM 591/4: a statement by the instructor or advisor as to how the course fulfills the math requirement and is not considered a general AEM elective

#### ***Non-UA course***

- Copy of approved Evaluation of Graduate Credit form
- The catalog course description and course syllabus
- Statement by the student as to how the course fulfills the math requirement