

## MCE 466 - Introduction to Finite Element Methods

### Syllabus

<b>Instructor:</b>	David G. Taggart, 289 Fascitelli, 874-5934, <a href="mailto:taggart@uri.edu">taggart@uri.edu</a>
<b>Office Hours:</b>	TBD / By appointment, In-person or via Zoom ( <a href="#">Zoom Personal Room</a> )
<b>Location / Time:</b>	Fascitelli 010C, Tuesday/Thursday, 12:30-1:45 PM
<b>Required Text:</b>	<b>A First Course in the Finite Element Method</b> , 5th or 6th edition, by Daryl L. Logan, Cengage, 2012 or 2017.
<b>Software:</b>	<b>ABAQUS Student Edition</b> (free download from <a href="#">3DS Academy</a> , <b>Matlab</b> ( <a href="#">free to URI Students</a> ) <b>Document scanner</b> ( <a href="#">Camscanner</a> , or similar app)
<b>Grading:</b>	<ul style="list-style-type: none"> <li>• Two Exams (25% each)</li> <li>• Computer Assignments (45%)</li> <li>• Attendance (5%)</li> </ul>
<b>FEA Vendor Links:</b>	<a href="#">ABAQUS / SIMULIA</a> , <a href="#">ANSYS</a> , <a href="#">ADINA</a> , <a href="#">SOLIDWORKS Simulation</a> , <a href="#">MSC NASTRAN</a>
<b>Course Links:</b>	<a href="#">Course Website - Links to Weekly Activities</a> (dgtaggart.github.io/mce466/) <a href="#">URI Brightspace</a> <a href="#">ECC Virtual Desktop (VDI) System</a>
<b>Course Policies:</b>	<ul style="list-style-type: none"> <li>• MCE 301 and 372 are required prerequisites for this course. Students who have not taken these courses should contact me immediately.</li> <li>• You are expected to attend all classes, read the listed text sections and complete the assigned homework problems.</li> <li>• Academic integrity: According to <a href="#">URI's student handbook</a> (p. 12), "A student's name on any written work including assignments, lab reports, internship reports, papers, or examinations, shall be regarded as assurance that the work is the result of the student's own thought and study." While group study is generally encouraged in this course, each student is expected to submit work that they have developed on their own.</li> <li>• Any student with a documented disability is welcomed to request accommodations. If you have any such requests, please see me as soon as possible. For more information, contact <a href="#">Disability Services for Students Office</a>, 330 Memorial Union, 874-2098,</li> </ul>
<b>COVID Information:</b>	<ul style="list-style-type: none"> <li>• The University is committed to delivering its educational mission while protecting the health and safety of our community. While the university has worked to create a healthy learning environment for all, it is up to all of us to ensure our campus stays that way.</li> <li>• As members of the URI community, students are required to comply with standards of conduct and take precautions to keep themselves and others safe. Visit <a href="http://web.uri.edu/coronavirus/">web.uri.edu/coronavirus/</a> for the latest information about the URI COVID-19 response.</li> <li>• Universal indoor masking is required by all community members, on all campuses, regardless of vaccination status. If the universal mask mandate is discontinued during the semester, students who have an approved exemption and are not fully vaccinated will need to continue to wear a mask indoors and maintain physical distance.</li> <li>• Students who are experiencing symptoms of illness should not come to class. Please stay in your home/room and notify URI Health Services via phone at 401-874-2246.</li> <li>• If you are already on campus and start to feel ill, go home/back to your room and self-isolate. Notify URI Health Services via phone immediately at 401-874-2246.</li> <li>• If you are unable to attend class, please notify me prior to the start of class.</li> </ul>

### Course Outline (tentative)

Week # - Dates	Topics & Assignments
1 - 1/25 & 26	Introduction Spring Elements
2 - 2/1 & 3	Spring Elements (cont.) Truss Elements
3 - 2/8 & 10	Truss Elements (cont.)
4 - 2/15 & 17	Beam Elements Frame Elements
5 - 2/22 & 24	<b>Exam 1</b> Plane Stress Elements
6 - 3/1 & 3	Plane Stress Elements (cont.) Practical Considerations LST Elements
7 - 3/8 & 10	Axisymmetric Elements Isoparametric Formulation, Numerical Integration
3/14 - 18	SPRING BREAK
8 - 3/22 & 24	Isoparametric Formulation, Numerical Integration (cont.) 3-D Elements Additional Topics
9 - 3/29 & 31	<b>Exam 2</b> Abaqus - Truss Analysis
10 - 4/5 & 7	Abaqus - Beam Analysis Abaqus - Plate Bending
11 - 4/12 & 14	Abaqus - Plane Stress Analysis Abaqus - Axisymmetric Analysis
12 - 4/19 & 21	Abaqus - 3D Analysis Abaqus - Heat Transfer Analysis
13 - 4/26 & 28	Abaqus - Buckling Analysis