

**MME 4310 Weekly Calendar (Subject to Change)**

Y&L= Young and Lovell; ART = Article; BB=Blackboard; DBT = Discussion Board Topic

The due date for uploaded assignments and quizzes is always 11:59 PM (MST) on the indicated date. Discussion board participation is always due 11:59 PM on Sundays. No late work will be accepted.

	Topic	Readings Due	Assignments Due	Notes
Week 1 8/24-8/28	<ul style="list-style-type: none"> <li>Course Intro,</li> <li>Intro to Polymers</li> <li>Basics of Organic Chemistry</li> </ul>	Review syllabus, BB Lecture 1	Syllabus Quiz <b>DUE 8/28</b>	
Week 2 8/31-9/4	Basics of Organic Chemistry	BB Lecture 2, Supplemental Video #1	DBT: <i>What role do aromatics play in polymer mechanical properties?</i>	Video will be on You Tube
Week 3 9/7-9/11	Basics of Organic Chemistry	BB Lecture 3 BB Lecture 4	DBT: <i>Can you have polymers without organic chemistry?</i> Organic Chemistry Basics Quiz <b>DUE 9/12</b>	
Week 4 9/14-9/18	<ul style="list-style-type: none"> <li>Basics of Polymers</li> <li>Polymeric Structure</li> </ul>	Y&L Chapter 1.1-1.2.4 BB Lecture 5	DBT: <i>What is the earliest use of polymers by human kind?</i> Polymer Basics Quiz <b>DUE 9/19</b>	
Week 5 9/21-9/25	Uses of common polymers	BB Lecture 6	DBT: <i>Why is polystyrene more rigid than polyethylene?</i> Group assignment: Fun with Polyolefins <b>DUE 9/26</b>	Groups will be arranged at random.
Week 6 9/28-10/2	<ul style="list-style-type: none"> <li>Polymerization</li> <li>Crosslinking</li> </ul>	BB Lecture 7 Video: Making Slime	DBT: <i>Can an alkane polymerize?</i> Group Assignment: The Chemistry of Slime <b>DUE 10/3</b> <b>TEST 1</b>	Groups will be arranged at random.
Week 7 10/5-10/9	Polymer Rheology	Melt Flow Index Video Dynamic Mechanical Analysis Video BB Lecture 9	DBT: <i>Can you determine Viscosity from MFI?</i> DMA Quiz <b>Due 10/10</b>	

Week 8 10/12-10/16	<ul style="list-style-type: none"> <li>Polymer Blending</li> <li>Miscibility</li> <li>Characterization</li> </ul>	BB Lecture 8 ART: Polymer blends for additive manufacturing processes	DBT: <i>Is miscibility coefficient good enough?</i>	
Week 9 10/19-10/23	Thermoplastic Composites	ART: Thermoplastic Composites for additive manufacturing processes BB Lecture 9	DBT: <i>Is mechanical strength the only reason to make a composite?</i> Group Activity: Design a Composite <b>DUE 10/24</b>	Groups will be arranged at random.
Week 10 10/26-10/30	Polymer Processing Extrusion Injection Molding And more!	BB Lecture 10 Extrusion Video Injection Molding Video	<b>DBT:</b> <i>What critical material parameters must one consider for the polymer processes of injection molding and extrusion?</i>	
Week 11 11/2-11/6	Polymer additive manufacturing processes	BB Lecture 11	DBT: <i>How do the characteristics of different polymers compliment the manufacturing process?</i> Polymer AM Quiz <b>DUE 11/1</b>	
Week 12 11/9-11/13	Altering Mechanical Properties Rubber Toughening Crystallinity	<ul style="list-style-type: none"> <li>BB Lecture 12</li> <li>XRD Characterization Example</li> </ul>	DBT: <i>How is crystallinity in polymers the same/different than in metals?</i>	
Week 13 11/16-11/20	Failure Analysis Polymer Characterization Techniques (Spectroscopy and Microscopy)	BB Lecture 13 ATR Video STEM Video	DBT: <i>How does polymer failure analysis differ from metallic based failure analysis?</i> Group Assignment: Interpret the fracture surface. DUE 11/21 <b>TEST 2</b>	
Week 14 11/23-11/27	Shape Memory Polymers	ART: Roberson SMP SMP Video	SMP Quiz <b>DUE 11/29</b>	Tentative due to Thanksgiving Holiday  No DBT!

Week 15 11/30- 12/4	Environmental impact of polymers		Final Project	<b>Final Project Assignment</b> <b>Project Due 12/11</b>
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