# MASE 6402/MME 5401 Weekly Calendar (Subject to Change)

B&K = Brandon and Kaplan; 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.

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic</th>
<th>Readings Due</th>
<th>Assignments Due</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 1    | 8/24-8/28 | Course Intro  
Overview of Characterization Techniques | Review syllabus, Fold Scope Ted Talk, BB Lecture 1, B & K Chapter 1. | Syllabus Quiz DUE 8/28 DBT: How can even the simplest characterization tool improve your characterization ability? | Ted Talk is on YouTube: https://www.youtube.com/watch?v=h8cF5QPPmWU |
| 2    | 8/31-9/4 | Surface Characterization | BB Lecture 2, B & K Chapter 7/8 | DBT: What technology advancements contributed to the development of surface probe microscopy? | |
| 3    | 9/7-9/11 | Surface Characterization  
Digital Imaging  
Dimensional References | BB Lecture 3 B & K Chapter 7/8 ART: Structure color | DBT: If I were making a thin film structure, what surface characterization techniques should I use? SURFACE CHARACTERIZATION QUIZ DUE 9/12 | |
| 4    | 9/14-9/18 | Optical Microscopy | BB Lecture 4 Metallography Video B & K Chapter 3 | DBT: How is a microscope used for metallography different than that used for biological specimens? OM QUIZ DUE 9/19 | |
| 5    | 9/21-9/25 | Optical Microscopy | BB Lecture 6 B & K Chapter 3 | DBT: Does etching a metallographic specimen take advantage of structure color of pigment color? OM LAB MODULE DUE 9/26 | |
| Week 7 | X-Ray Diffraction | BB Lecture 8  
B&K Chapter 2  
ART: “Metal Fabrication…” | DBT: Based on the article reading this week, how do X-Ray diffraction and optical microscopy complement each other?  
XRD LAB MODULE DUE 10/10  
TEST 1 DUE 10/10 |
|---|---|---|---|
| Week 8 | Electron Microscopy  
SEM | BB Lecture 9  
B&K Chapter 5 | DBT: If You could only have a SEM with one type of signal detector, which one would you pick and why? |
| Week 9 | Electron Microscopy  
SEM | B&K Chapter 5 | DBT: Based on the provided image, which type of electron signal created the image?  
SEM LAB MODULE DUE 10/24  
Groups will be arranged at random. |
| Week 10 | Electron Microscopy  
SEM | BB Lecture 10  
B&K Chapter 5 | DBT: Based on the provided image, which type of electron signal created the image? (Round 2)  
SEM QUIZ: DUE 11/1 |
| Week 11 | Electron Microscopy  
TEM | BB Lecture 11  
B&K Chapter 4 | DBT: Based on the provided image, which contrast mechanisms do you see? |
| Week 12 | Electron Microscopy  
TEM | BB Lecture 12  
B&K Chapter 4 | DBT: Based on the provided image, which contrast mechanisms do you see? (Round 2)  
TEM QUIZ: DUE 11/14 |
| Week 13 | Electron Microscopy  
TEM | BB Lecture 13  
B&K Chapter 4 | DBT: If you had a mystery chunk of material, but could only use one material characterization technique, which one would it be and why?  
TEST 2 DUE 11/21 |
<table>
<thead>
<tr>
<th>Week 14</th>
<th>11/23-11/27</th>
<th>Open</th>
<th>TEM LAB MODULE DUE 11/25 (Before Thanksgiving)</th>
<th>No DBT! Thanksgiving Holiday</th>
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</thead>
<tbody>
<tr>
<td>Week 15</td>
<td>11/30-12/4</td>
<td>Open</td>
<td>Final Project Or Review for Final</td>
<td>Virtually collaborate gathered data for project. Project Due 12/11</td>
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