

The Impact of Materials on Society Module 1 - Introduction

This module introduces the structure of the course, the basic properties of materials, and the dynamic relationship between materials and society (materials shape society, but society shapes how we perceive and use materials). Be sure to complete this module in the order it is written!

Essential Questions Addressed by this Course

- What are the scientific properties of materials on Earth?
- How can these materials be manipulated to solve technical and social problems?
- How do social and cultural systems shape how humans perceive and use materials?
- How does the impact of materials on society vary based on cultural and social context?
- What new materials innovations will shape our future?
- What new materials innovations could shape our future, and how can we design uses for these materials that address social needs?

Module Objectives

Students will:

- understand the course materials and objectives
- consider why materials matter to society
- identify the physical and social properties of matter
- describe the properties of an easily accessible object
- personalize a preliminary materials Impact Paradigm for use throughout the course

Lectures and Readings

The following videos are examples of how you can present the course introduction to your class.

Sample Lecture Video: [Why Do Materials Matter](#) (8:02)

Sample Lecture Video: [Physical and Social Properties of Materials](#) (10:49)

Read: Physical and Social Properties of Matter [PDF](#) | [Word](#)

Sample Lecture Video: [IMOS Course Structure and the Impact Paradigm](#) (8:28)

Assignment: Describing Materials

Now that you've gotten a little background understanding of the content of the course and how we will approach describing and analyzing materials, you can apply that to any material anywhere around you.

Instructions

1. Find an object you can pick up and bring into class. It doesn't matter what it is!
2. Write the name of your object at the top of a sheet of paper.
3. Make a t-chart with two columns on your page. Label one column "physical properties" and one column "social/cultural properties".
4. Referring to the **Physical and Social Properties of Matter** document you read earlier in the module, use what you've learned from the lectures and the document, as well as your own research, to describe your object. Place physical properties in one column and social/cultural properties in the other. Refer to the grading rubric below for grading criteria.

Describing Materials Grading Rubric

Criterion	5 Points	3-4 Points	0-2 Points
Response Content	5 or more properties per column that reflect understanding and thoughtful consideration.	3-4 properties per column that reflect understanding and thoughtful consideration.	Less than 3 properties per column. Attention to detail is not apparent.

Assignment: Customized Impact Paradigm

Think about the important nuances that affect the relationship of materials and society, or think about different sectors of society in which materials may have an impact. Remember, just because a material exists doesn't mean that we know how to use it, so think about all of the factors that influence how a society is able to make use of a material in an innovative way.

Instructions

1. Read the [IMOS Impact Paradigm](#).
2. Note that there are four categories as were outlined in the lecture. These questions cover a lot of ground, but there are always new questions to ask! After reading through each category, add at least one question to each of the categories.
3. Highlight the question(s) you added in yellow.
4. Save the document with the following naming convention: impactparadigm_yourname (ex. impactparadigm_sarahjenkins).

You will be adding to this document throughout the course and then using it to build your final project.

5. Submit your document. Refer to the due date document for due dates and additional submission requirements.

Customized IMOS Impact Paradigm Grading Rubric

Criterion	5 Points	3-4 Points	0-2 Points
Response Content	Instructions for naming conventions are followed. A question is added to all four categories of the Impact Paradigm.	Instructions for naming conventions are followed. A question is added to two or three categories of the Impact Paradigm.	Instructions are not followed. Assignment is incomplete.