**Sustainable Materials Course Project Checkpoints**

**Project Checkpoint #1 (~Week 2):** Form a group for the course project and propose a title for your project as a group.

**Project Checkpoint #2 (~Week 4):** Work with your project group to prepare 1 slide to introduce your project. Slide should include your motivation and Scientific Hypothesis. Slides may include figures, graphics and text. Include a second slide with the names of all group members. Please upload only 1 slide per group.

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**Project Checkpoint #3, Written Midterm (~Week 6):**

* The material goal selected should be innovative, climate-friendly, and clearly relevant to the topic. Excellent responses will present a creative and relevant material, while proficient responses will show a clear material goal with some creativity. Adequate responses may present a relevant goal but lack innovation or clarity. A material that is unclear or irrelevant to eco-materials will score lower, while a complete lack of a clear goal will receive the lowest points.
* **Process Description (2.5):** This section assesses how well the student describes the process of creating the material, from sourcing to production. A detailed and clearly organized description with innovative methods and eco-friendly features will earn the highest points. Proficient responses will describe the process adequately with some attention to eco-friendly aspects. If the description is basic or lacks clear steps, it will score lower. Poorly described processes or a lack of detail will receive minimal points.
* **Environmental Impact (2.5):** The environmental benefits of the material should be clearly articulated and linked to sustainability goals. An excellent response will demonstrate a deep understanding of how the material positively impacts the environment, while a proficient response will explain the benefits with some clarity. Adequate responses may offer a basic explanation but lack depth. If the benefits are unclear or not tied to sustainability, the response will score lower. No mention or an incorrect explanation of environmental impact will receive the lowest points.
* **Importance & Application (2.5):** Students should explain why this material is important, offering real-world examples of its potential applications. The best responses will provide a thorough explanation with concrete examples, while proficient responses will explain the importance with a few examples. If the explanation is brief or lacks clear examples, it will score lower. Vague or incomplete responses with no real-world application will receive minimal points, while failing to explain the material’s importance will result in the lowest score.
* **Clarity & Organization (2.5):** This criterion evaluates how well-organized and clearly written the response is. A top-tier response will be well-organized, easy to follow, and free of spelling or grammar mistakes. Proficient responses will have good organization with minor errors. Responses with frequent spelling or grammar issues or less clear organization will score lower. Disorganized or difficult-to-read responses with many errors will receive the lowest points.
* **Schematic/ Graphical Abstract (2.5):**Students should prepare a schematic or graphic outlining the broad ideas and goals of their projects. Schematics should contain little to no data and minimal text. It can illustrate the process, the intended application, the salient features of the material or all of the above.

**Project Checkpoint #4, Midterm presentation (~Week 8):** Present 8-minutes on ideas from written segment.

**Project Checkpoint #5, Literature Review (~Week 10):** Write 1-2 pages single spaced with at least 5 references (ideally more). A typical literature review contains an introduction about the problem/topic, current solutions and efforts in the space, and scientific evidence that already exists which demonstrates how your new, proposed solution would address the problem, and an overall conclusion, with references cited throughout.

**Project Checkpoint #6, Life Cycle Assessment (~Week 12):** Estimate an LCA of your product, to find priorities for sustainability and make fair comparisons between alternatives. You should compare it with conventional solution and prove that your solution can be more sustainable (like a start-up pitch). Conduct two LCAs: 1) for non-sustainable conventional solution and 2) for your chosen material. Minimum requirements: Water LCA and Energy LCA for both solutions. An example of LCA analysis you can find in the presentation "Nov 6 Sustainable Materials Management part 2"

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