

ALIEN-CENTERED DESIGN PROJECT (MENDOZAG - SECTION 011)



Request for Proposal (RFP) – Needfinding – M0

Purdue will be piloting a new student exchange program this fall: students from a planet in the Alpha Centauri solar system will be coming to Purdue for 9 months as part of their intergalactic studies program. Purdue wants them to keep coming and succeed in their studies. Purdue would like your input –from both perspectives as a student and as an engineer—on possible artifacts/processes that the University might build/implement to make the aliens experience at Purdue less difficult.

Proposals will be evaluated based on their ability to identify a **critical need** that is relevant for a successful alien student exchange experience. The need may be associated with a broad range of topics: transportation to/from or around campus, a physical building space (internal and external), access to food, etc. Each team may define different needs.

- a) To help you think about what they could need when at Purdue, you have to write a story of how a day of one or a group of aliens (depending on the need you found) at Purdue could be.
- b) You are required to justify why this need is critical for the aliens' success. The claim for the need should be linked with the story of a "Day in the life of an alien (group of aliens) at Purdue" .
- c) Every claim should be following the logic of: claim::reason:: Evidence. Evidence can be based on internal (Internal expertise or research data) or external sources (monographs, periodicals)¹.

Important Note: *All inquiries regarding this RFP should be directed to your instructor or graduate teaching assistant.*

Deliverables and Evaluation

Detailed information regarding the deliverables required for each milestone will be given on Blackboard in the Project folder. The Design Project is 20% of your total grade in this course.

General restrictions about the final solution

- a) Your final prototype(s) should communicate the form and the function of your final design.
- b) Your final solution should be something new – not an existing solution that you are using in a new way.
- c) Since these friendly aliens are very concerned with the difficult situation of earth's global warming, they required that their presence here make minimal net impact (and if possible no impact at all) in the environment. They required that the solution followed the same path than Colin Beaven in his book "No impact man" (Beaven,2009):
 - The solution preferably should not create net impact on the planet earth.
 - Not creating net impact on earth means (based on Colin's Beavan book):
 - Aliens don't want to create trash, for example, they do not want to use products that are thrown away after being used less than an hour. For example, packaged products.
 - Aliens want their carbon footprint² to be minimal.
 - Aliens don't want to throw toxins in earth's water.
 - Aliens don't want to use electricity/energy that comes from non-renewable sources.
 - We want you to create something new, not an existing solution that you are using in a new way. However, to follow the aliens' instructions, this new product should be created from recyclable materials.
 - All the elements that you use to create your prototypes should be created from recyclable materials.
 - According with Alien's requirements, your team should reduce its carbon footprint while working for this project. You should show data that confirm how you did it. (For example, connecting your computers to a solar panel, or using only one computer while working for the project. To show how much energy you saved, you can create a comparative graph).
- d) The artifact should be designed following the principles of sustainable design.

¹ Look at slides class 01B

² There are several carbon footprint calculators available online. For example carbon footprint.com :

<http://www.carbofootprint.com> or The Nature Conservancy <http://www.nature.org/greenliving/carboncalculator/index.htm>

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| Milestones | Description | Due Date | Grade Distribution |
|-------------------|---|--|--|
| M0 | Needfinding: "Day in the life of an alien at Purdue" story & photographs of possible needs to address | Class 7A, October 1 st | 5% |
| M1 | Project Scoping: Your team's focus, goals, constraints & criteria | Class 8B, October 8 | 10% |
| M2 | Concept Generation & Simple Prototypes | Class 10A, October 22 | 10% |
| M3 | Concept Reduction & Selection | Class 11A, October 29 | 10% |
| M4 | Initial proposal (Detailed Design & Prototype) | Class 12B, November 7 | 10% |
| | Design project Report Review (DPRR) | Class 13B, November 14 | |
| M5 - Final | Final Presentations, Design Notebook and Report | Presentation: Week 16 Notebook: 16B, Dec 05 Report: Dec 05 | Presentation 20% Report 25% Prototype 10% Notebook (2%) |