**Playing God: Worldbuilding 101 Syllabus**

**Spring HSSP 2014**

Catalog number: S8116

Teacher: Kaylee Brent, sophomore in Earth, Atmospheric and Planetary Sciences

Contact: **kbrent@mit.edu**

Meeting Times: Saturday, 10:30am-12:00 in room 1-375 (1.5 hours a week)

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| March 1 | **Intro: General Formation and Evolutionary Processes of Planets**  We will have brief introductions to the class, its expectations, and the students in it. The lecture will cover the way that planets and solar systems form, the basics of their physical and chemical properties, and the ways that planets change over large timescales. |
| March 8 | **Our Solar System: Planets and Moons**  We'll go over our solar system: what are each of the planets and many of the moons like and how do they get that way? We'll also look at which ones are possibly refuges for life (which we'll also go into on 3/29) |
| *March 15* | *NO CLASS - SPARK* |
| March 22 | **Exoplanets**  A ton of other planets have been discovered orbiting other suns. We'll look at how they're discovered, how they're formed, and what we know about them. |
| March 29 | **Astrobiology**  Astrobiology is a really interesting speculative discipline concerning possible alien life. From examples of life on Earth, especially extreme life, we will go to planets that could possibly support life and how they would do that. |
| April 5 | **Terraformation and Planetary Engineering**  Now that we know how planets work on their own, let's think about the applications of that. We'll go over how humans have already altered the physical properties of the planet Earth, and how both Earth and other planets might be altered in humanity's favor. (Next week, we will use what we've learned to debate the wisdom and ethics of this.) |
| *April 12* | *NO CLASS- CPW* |
| April 19 | **Ethics Debate; Time to Work on Final Project**  We'll debate the policy implications of terraformation and other planetary engineering projects. After the debate you'll be given some time to work on your final projects. |
| April 26 | **Final Project Presentations** |

**Class Expectations**

I run these classes for your edification. Please try to show up on time, and be respectful of other students. If you want to use the bathroom or get a drink of water, please leave and return quietly. You will have lunch right after class, so it is not necessary to eat, but you are allowed to so long as it does not become a distraction to others. (I.e., don't eat crunchy things.)

The class is mostly lecture format; however, students are encouraged to ask questions and interact. Again, this class is for you guys-- I could talk about this stuff all day. You may want to bring *a notebook and pencil* or a laptop to class to take notes. If you bring a laptop please don't play games or browse Facebook- it's distracting to others.

The last two weeks of the class will be student-run, however-- a debate on the ethics of planetary engineering and colonization and a final project presentation.

There will be a final project presentation on the last day of class. You will have some time on the week prior-- the 19th-- to prepare for this, but most work should be done outside of class if possible. Your presentation will be better for it! Details of the project are provided here in the syllabus and will be discussed briefly on the first day of class, and you are encouraged to start early and incorporate lecture material along the way. The final project should not take you more than a few hours of your own time to put together.

**Final Project Details**

Create your own world! This is where the playing god part comes in. Pretend that you are going to write a 'hard' science fiction story (which you are welcome to do in addition to this class!) set on another world. It can either be another planet in our solar system, a known exoplanet, or a planet you make up. Using the materials we've learned in class, make this world and the system that it is in plausible. Are there life forms on it? What are they like?

You have the opportunity to work on this project either individually or in groups of up to 4 students. I will give you some time to divide yourselves into groups in the first lecture.

I'm available at any point at **kbrent@mit.edu** for you to ask me clarifying questions, bounce ideas off of me, ask for resources, and whatnot.

The projects and presentations will not be graded, however, on the last day of class when you present, there will be prizes available to the best presentations and ideas (discussed and voted on by the class).

Presentations should be made to run about 3-5 minutes (this number may be adjusted based on how students arrange groups on the first day). I will have a powerpoint setup (you can email me powerpoints or use a thumb drive), and you can use handouts and the blackboard if you like.