**Activity: Should Human Genes Be Patentable?**

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**Overview:** In this activity, students will have an opportunity to debate current controversial issues in biotechnology from the point of view of a stakeholder group.

 **Goal/s:** Engage in discourse regarding the ethical nature of specific scientific innovations. **Class:** HSCI E-137: History and Ethics of Biotechnology

 **Introduction/Background:** Throughout the semester, students are required to engage in 1 of 3 debates. Each debate addresses a current issue in the biotechnology. Participating students are arranged in groups of 4-5 and assigned the position of a particular stakeholder (i.e. organization, interest group, corporation, etc.) in the debate. They are then instructed to engage in dialogue from the perspective of their stakeholder.

 **Procedure:**

1. Preparation for activity:In lectures and course readings, students will engage with the issues of ethics and biotechnology (i.e. patenting human genes, expanding the national forensic DNA database, regulating reproductive technology clinics, etc.) leading up to the debate. The first debate usually takes place near the mid-point of the semester. The instructor assigns students in groups of 4 or 5 two weeks before the debate. It is highly encouraged that students work together outside of class, using course materials to develop strategy and group chemistry.
2. Rules for activity:
	1. Each student will have 4 minutes to speak
	2. One student from each group will prepare an opening statement (scripted)
		1. The opening statement is designed to establish their position
		2. Approximately 16 minutes
	3. One student from each group will respond with a first rebuttal (unscripted)
		1. Approximately 16 minutes
	4. One student from each group will respond with a second rebuttal (unscripted)
		1. Approximately 16 minutes
	5. After rebuttals, there will be an open question and answer period from the audience
		1. The audience is comprised of the instructor, teaching fellows, and those students not participating in the debate
		2. Approximately 20 minutes
	6. Each group will respond with a third rebuttal
		1. Approximately 16 minutes
	7. One student from each group will provide a closing statement (scripted)
		1. Approximately 16 minutes
3. Steps of activity:
	1. On the day of the debate, at the beginning of class, student groups assemble at the front of the classroom behind tables or podiums.
	2. Instructor opens with a question:
		1. *Should human genes be patentable?*
	3. One student from each group provides an opening statement.
	4. Each group will then respond with unscripted first and second rebuttals.
	5. The floor is then open to audience members to pose questions.
		1. Group members provide unscripted responses
	6. All group members will work together to deliver a third rebuttal.
	7. One student from each group will provide a closing statement.
	8. The debate should last the entire class period (approximately 2 hours); however, it is possible to use two class periods to complete the activity.

**Follow-up:** The instructor evaluates student performances on their observations. Students are graded based on their participation, and adherence to the debate guidelines. In addition, students are assigned a position paper at the end of the semester, in which they are instructed to discuss the issue they chose to debate, pick the side of a stakeholder, and explain their reasoning. Students do not have to choose the side they were assigned during the debate.

 **Comments:**This activity is intended to be a structured opportunity for student participation. Because students will be asked to respond to certain questions and comments while in character, they will be challenged to step outside of their realm of comfort, and embrace an identity and/or ideology unique from their own perspective. These debates are instrumental, in helping students understand the morality of controversial scientific innovations. In many course evaluations, the debates are consistently referred to as a hallmark moment in the semester.

 **Materials/Resources:**

* Timekeeper
* Nametags
* Podiums or long tables