Student Success through TILE-Constellation Courses and *Origins of Life in the Universe*  

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What are TILE-Constellation Courses?

- undergraduate general education courses based on a multidisciplinary topic
- taught by a “constellation” of faculty, each bringing expertise

What is a TILE room?

- state-of-the-art classrooms
- UI has invested across campus
- allow students to engage in course material during class time through team and table activities
Pilot Program: *Origins*

- funded by Office of Provost
- create first multi-disciplinary course for undergraduates
- year-long so that faculty, TAs, students interact meaningfully
- fulfills GE Natural Science (lab)

**Topic is at the intersection of many fields**
Structure of the Course

• 2 meetings/week: activities
• students work in teams of 3
• outside readings including popular science genre books
• all faculty/TAs facilitate activities
• year-long curriculum

Hands-on Opportunities
A “Constellation” of Faculty for Origins of Life in the Universe 2013-14
Using “Big Questions” teaches students to inquire, become lifelong learners

- What is the universe made of?
- How did our Solar System form?
- What is the biochemical basis for life as we know it?
- Where on Earth did life form?
- What does the fossil record on Earth show us?
- How do we reconstruct early Earth and early life on Earth?
- How has life evolved on our planet?
- How did humans originate on Earth?
- How have humans changed over time on Earth?
- Where and how can we look for life elsewhere in the Universe?
A typical “lecture” scene in *Origins*
Simulating Seismic Waves on Earth
Simulating the “Primordial Soup” on Earth
Using Time in the Classroom to Dig Deeper

How does the DNA replication process actually work?

Should humans colonize Mars?

What are the most extreme forms of life on Earth?
Sebastian De Pascuante

- 2nd year graduate student at U Iowa in Space Physics at U Iowa
- Teaching Assistant for Life in the Universe - helped to design and facilitate “activities” for the TILE classroom
- Origins Course Design and Development - helped develop curriculum and tools for collaboration: WIKI site for course development, best practices, student learning space, and workshops - evaluation of course material, activities, and objectives
- Assessment for Origins of Life in the Universe - design student feedback/evaluation for course - part of Graduate Teaching Certificate (College of Education)
Early Student Feedback from *Origins of Life in the Universe*

— “I was so nervous taking a science class for the 1st time in 3 years, but the in-class activities and lectures have really helped me to understand it better than I ever have in previous years”

— “I really like the collaborative aspect... Overall, this course is excellent how it makes science appealing for those who don’t like science. The work/effort put into all of the activities and examples makes me think you all actually care how I do in the class. I’m glad I took it!”
Future Vision for TILE-Constellation Courses at U Iowa

- build a trio of general education options: Origins (Natural Science), Globalization in India (Social Sciences), and a humanities course; could imagine majors-level options also!
- grow offerings so that 40% of first/second year students could have opportunity to take a TILE-Constellation course
- establish a “home” on campus for course oversight
- establish sustained funding in collaboration with Provost Office and Colleges across campus, grants, other sources