

Students find interstellar seminar thought-provoking



Photo: Jeanette Steinert

By Jeanette Steinert

It wasn't what Lindsey Choi expected.

"My expectations were simple topics, little depth. Many speakers challenged that by providing behind-the-scenes views of the science involved," said the WSU senior of Wichita State's initial Interstellar Seminar course this past spring.

The 1-credit seminar, which included twenty speakers from six universities, four NASA centers and four commercial space companies, was a broad non-technical course to introduce interstellar studies.

First up—where are we, where do we want to go? How do we get there? And, BTW, where is "there"?

Well, if it's Proxima Centauri, it's 25 trillion miles (4.2 light years) from Earth. The Andromeda Galaxy is 2.5 million light years away. Mars' average distance from Earth is 140 million miles.

According to Les Johnson of

NASA, to attempt interstellar travel the goal is to reach 10% of the speed of light. Our current knowledge won't get us there. Fusion, nuclear pulse or antimatter rockets? Maybe.

One possibility is offboard energy solar cells, which use photon pressure reflected off thin, lightweight reflective sheets (solar sails) to produce thrust. NASA, Canada, Europe and Japan have all flown solar sail missions in Earth's orbit, none using them for primary propulsion yet. NASA has new launches planned for 2023 and 2028.

Wayne Schubert of NASA JPL had an unexpected take on planetary protection. "I was surprised the focus was our [microbial] impact [on other worlds] and not the impact of other things on us," said biology major Choi. (Reverse contamination was another session.)

The regenerative resupply topic was amazing. Alex Ellery of Carleton University, Ontario, explained how a stock of only ten basic materials with properties allowing melting, molding, layering or combining, could supply the full functionality of a robotic spacecraft using multi-

material 3D printing and manufacturing systems to repair and even replace spaceship parts.

Grant Anderson, Paragon Space Systems spoke about "closing the loop." Meaning that everything must be recycled with no waste and reliable enough to ensure success for decades.

Before explaining the complicated task of finding exoplanets, WSU graduate Thayne Currie of Subaru / UTSA shared his switch from WSU scholarship athlete to scientist after taking an intro to astronomy class. "It was one of the best stories to hear in a low-level course. I would like to hear more," said Choi.

For pre-med student Jaylynn Wolf, the course was also different than expected, "but in a good way. We learned about much more than I anticipated, like the philosophy and ethics behind interstellar travel," she said.

Keeping humans healthy physically and mentally while traveling in a vacuum was more complex than she thought. "I was always aware any significant travel would

be multigenerational, but never thought about what that would mean for the daily lives of those on the mission.

It was interesting to learn about the process of planning multigenerational missions, who is selected for the crews and the rules / regulations for future generations to ensure mission success," she said.

And we spoke a lot about the ethics behind the decision-making for those future generations," said Wolf.

With reflection papers required, students were able to do just that...

For one student, "This is one of the most accessible and thoughtful courses I've ever taken...Its mission is clearly to put students and professionals in a dialogue and community of people who are fascinated by interstellar possibilities.

It is stress-relieving to have coursework that is about how your world view is influenced by fascinating topics...to be allowed to simply learn and absorb is marvelous."

Wolf agrees. "This course has made me excited for what the future of space research holds," she said.

This course will be offered at WSU again in the Spring of 2024.