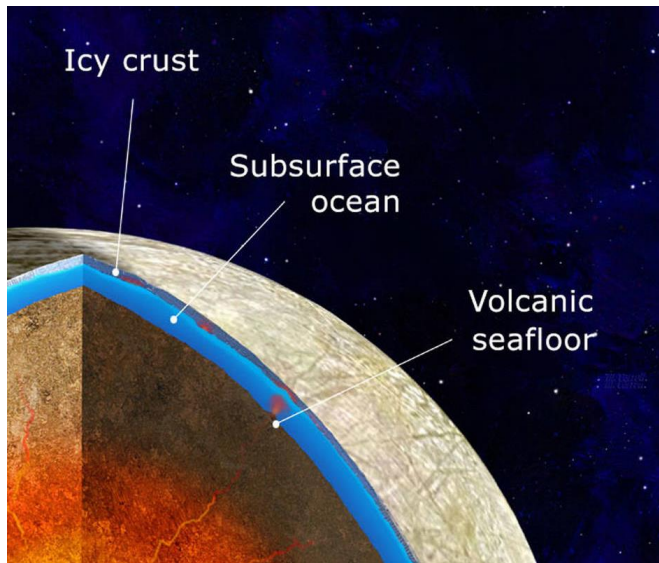


Exploring an icy moon for signs of life — How cool is that?

Is it possible that alien life thrives below the icy surface of Jupiter's moon Europa? Evidence from telescopes on Earth and satellites flying by Europa suggests this may be true. Jupiter's moon may be the most promising place in our solar system to find environments suitable for life beyond Earth.



Artist's rendition of interior of Jupiter's moon Europa
Illustration Credits: NASA/JPL-Caltech/Michael Carroll

NASA and the European Space Agency are looking for answers—both organizations are developing spacecraft for near-term missions to acquire even more conclusive evidence. Projects such as these provide an exciting opportunity for STEM professionals. A multidisciplinary mix of scientists and engineers must collaborate as a team to solve a complex real-world problem that is too large for any individual.

High-school level MESA teachers are invited to participate in a brief study to begin preparing students for such challenges. Learning to work on projects as a team will open the door to exciting opportunities for

budding scientists and engineers. In industry, professionals practice systems engineering—an interdisciplinary field of engineering—to design, integrate, and manage complex systems over their life cycle. This proposed MESA course will teach rudimentary systems-engineering skills as students tackle a complex real-world problem. After completing the course, students will have the ability to apply their learning to future projects and continue developing their skills.

Plans for the course in 2022 are:

- *Students respond to a design challenge in the form of a request for proposal (RFP).*
- *The theme is developing a “system” to explore Europa for conditions that could support life.*
- *Students start by forming teams of 3 to 4.*
- *Next, they work on a series of mini projects to gain information to complete their design.*
- *Duration of course is six one-hour lessons.*

This course offers teachers an opportunity for end-of-year filler in 2022, possibly after finals or AP exams. Alternatively, teachers could integrate it into a summer program as a supplemental activity.

If you are interested in participating with your students, please contact:

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