



Preparing Students to Work in Diverse Settings and Across Distance: Inter-University, Interdisciplinary Capstone Teams

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NASA's Psyche Mission, led by Arizona State University (ASU), is scheduled to launch in 2022 and arrive at the mostly-metal asteroid, (16) Psyche, in early 2026.

Student Collaborations opportunities include development of interdisciplinary senior capstone projects tied to the mission.



Benefits of Inter-University, Interdisciplinary Teams:

- ✔ Students experience being remote from a customer and from team members.
- ✔ Students experience teaming with diverse disciplines and using virtual collaboration tools (e.g. Slack, Web-Ex)
- ✔ Provides access to non-local, specialized technical mentors (such as those at NASA Centers), professionals who are accustomed to working with remote colleagues.
- ✔ Introduces disciplines not offered at a particular institution (for example, engineering management).
- ✔ Provides greater fidelity to NASA space missions and other large academic, industry, or government efforts, which involve diverse teams working together at a distance.

Conclusion and Future Plans:

The relatively minor differences in the challenges faced by inter- vs. single-university interdisciplinary capstone teams suggest that the benefits outweigh the issues.

In the future, the Psyche Capstone Program intends to expand this offering to interested university partners.

"This was a very good experience when it comes to **communication and organization of projects.**"
- Mechanical Engineering student

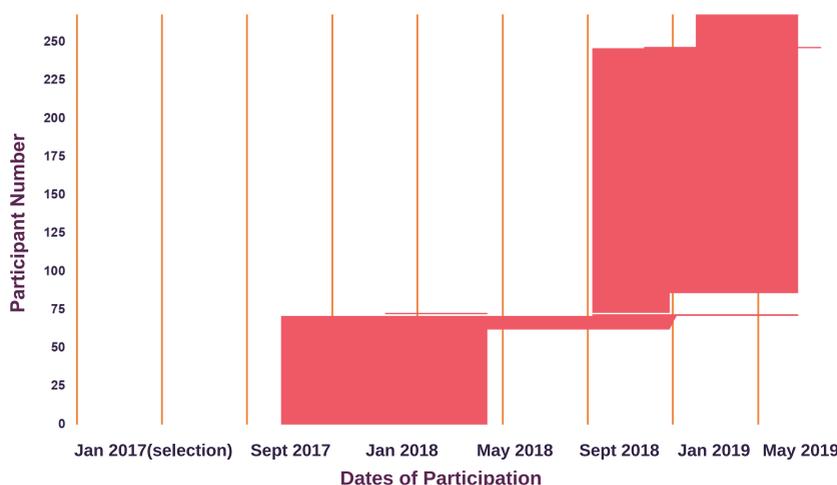
"I learned hugely **valuable lessons about communication, managing remote teams, and leading virtual projects.** These skills will be invaluable wherever I end up."
- Project Management student

"The main benefit that I obtained from the Psyche capstone project was being able to **gain experience leading a multifunctional team.** I believe that there is only so much that lectures and class work can teach - neither of which can replace the hands-on learning that this project provided."
- Project Management student

"[Our project manager] was incredibly helpful and professional. Starting this project, **I never expected to have a project manager as another member of our group, but I could not have been happier to have [him] on board.** [He] helped us solve problems or get answers to questions that normally would have had us spinning our wheels for longer than we could afford. "
- Electrical Engineering student

NASA
PSYCHE
MISSION
<http://bit.ly/2InCiuU>

Psyche Capstone Participants (2017-Present)



TEAM TYPES (2017 - Present)	Single - University			Teams
	Discipline	Student Type	Count	
Single - University	Single Discipline	All On-Campus Students	9 Teams	
	Single Discipline	All Online Students	1 Team	
	Single Discipline	On-Campus & Online Students	1 Team	
	Multiple Disciplines	All On-Campus Students	24 Teams	
	Multiple Disciplines	On-Campus & Online Students	4 Teams	
Multiple-University	Multiple Disciplines	All On-Campus Students	1 Team	
	Multiple Disciplines	On-Campus & Online Students	2 Teams	

Challenges	Single-University	Inter-University
Capstone courses assign teams using different mechanisms and at different times.	●	●
Deliverables/ requirements/ timelines vary by capstone	●	●
Disciplines have different cultures, norms, work habits	●	●
Students have little experience working with other disciplines; may not value their contributions	●	●
Course assessments are handled differently, at different times	●	●
Peer-assessment across disciplines requires extra coordination	●	●
Access to facilities may be restricted to certain disciplines	●	◐
Student schedules from different majors seldom align	●	●
University semester schedules vary.	○	●
Scheduling meetings is complicated by time zones	◐	●

