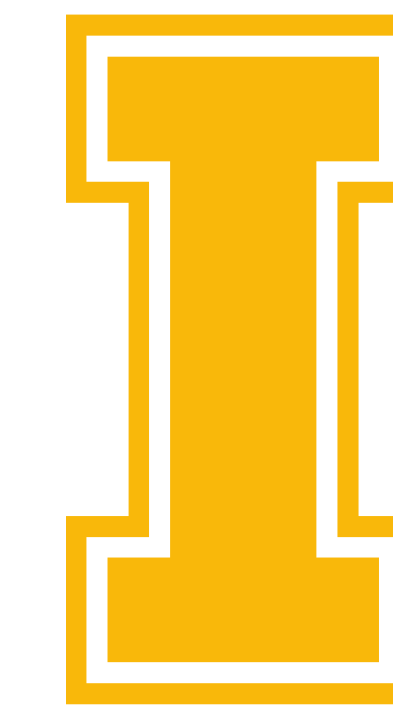# Formation of Interdisciplinary Teams in Engineering Capstone Courses using a Project Fair Format

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College of Engineering

Objective

Create a coordinated approach for systematically forming interdisciplinary student teams and matching them with sponsored capstone projects.

Introduction & Background

The University of Idaho has an interdisciplinary engineering capstone program with:
- Mechanical engineering
- Electric and computer engineering
- Biological engineering
- Computer science

A large coordinated effort is required to:
- Recruit sponsored projects
- Introduce project options to the students
- Assign interdisciplinary teams to projects with specific needs

Historically

Interdisciplinary projects are recruited, then…
at the beginning of the capstone cycle, each project has a representative give a brief (~5 min) oral presentation in class, outlining the project synopsis

Pros:
- Every student learns about each project
- Every project is given ~equal exposure

Cons:
- Takes ~1.5 weeks to present all project options
- Students must attend all presentations, even if there is not a disciplinary match
- No opportunity for one-on-one interaction

Oral Presentation
https://www.youthvoices.live/2017/04/26/exploring-the-relationships-of-oral-presentation/
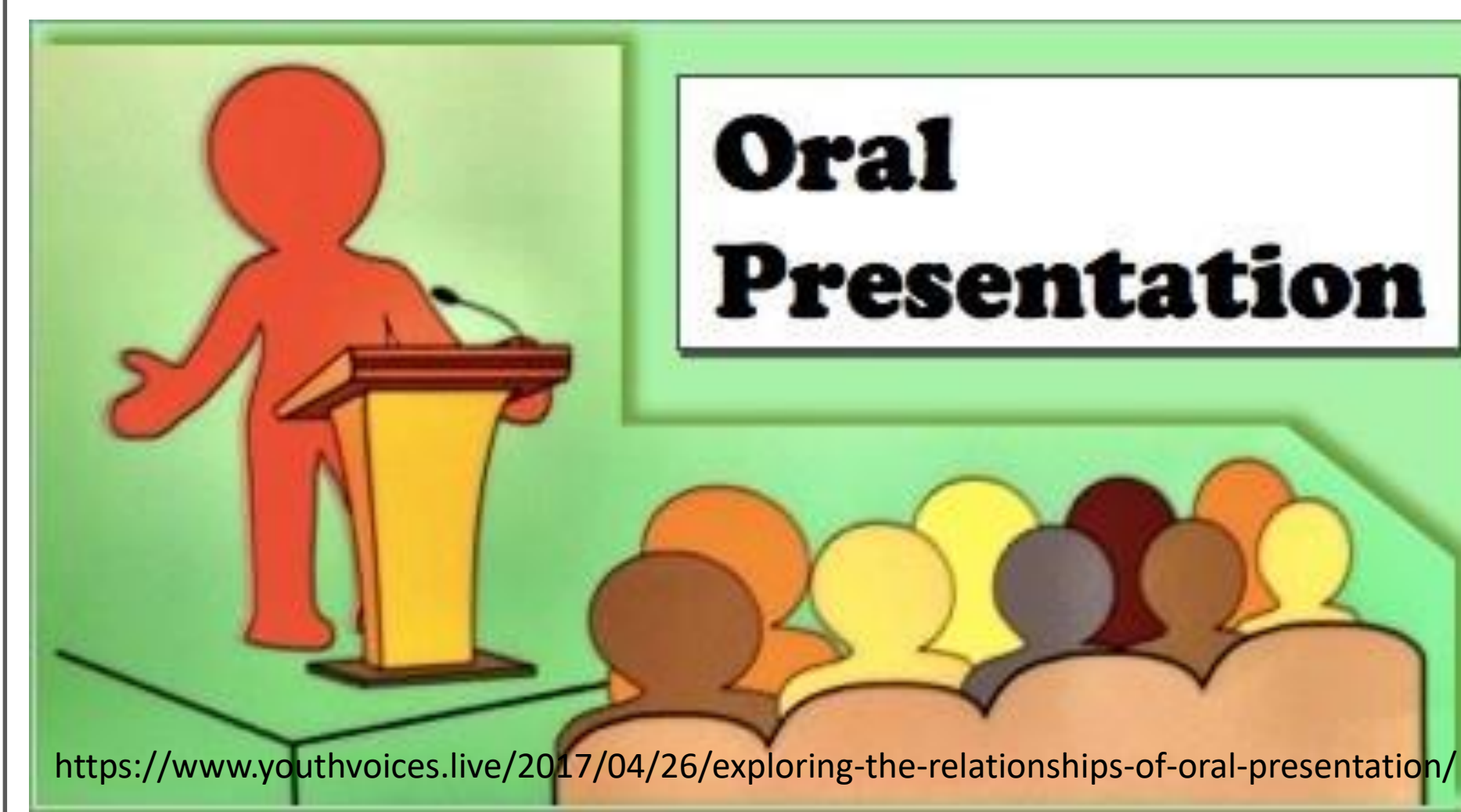
Methodology and Implementation in 2017-2018

Project Recruiting

Sources of projects:
- External industry partners
- Internal departmental research
- On-campus departments outside of engineering

For each project:
- Determine ideal size and mix of interdisciplinary students
- Keep a running tally of total student disciplinary needs

For the 2017-2018 capstone cycle:
- 42 projects were recruited as candidates
- 25 projects needing interdisciplinary mix of students
- Total student need was ~16% higher than overall enrollment

2017-2018 UI Capstone Cycle	ME	CompE	EE	CS	BE	Total
Total # of projects recruited			42			
Total # of interdisciplinary projects			25			
Project student needs	69	17	40	33	14	173
Actual enrolled students	58	6	33	32	11	140
% over-recruited	19%	183%	21%	3%	27%	16%

Project Fair

Students are provided advanced information (synopsis) for each project option

Format: one-day event, similar to a traditional Career Fair (1.5 hours)
- Booths representing each project
- Representatives for each project attends, and
    - Presents the project using posters, videos, and physical hardware
    - Answers questions from students about the project

Student Assignments:

Before the Project Fair:
1) Preview each project synopsis
2) Identify projects of interest
3) Compile a list of questions for the representatives

After the Project Fair:
Submit a Project Bid Portfolio with
A) Top 4 project preferences
B) 1-page resume
C) Relevant personal information

Team Formation

(conducted by faculty)

Results:
- 34 Projects Assigned
- 23 Externally sponsored projects
- 18 interdisciplinary projects

Observations:
- Over-recruiting of projects adds flexibility and makes the project bid process more competitive.
- Over half of the projects are interdisciplinary
- External sponsor presence at the career fair leads to → high student interest

2017-2018 UI Capstone Sequence

2017-2018 UI Capstone Design External Sponsor Participation in the Project Fair
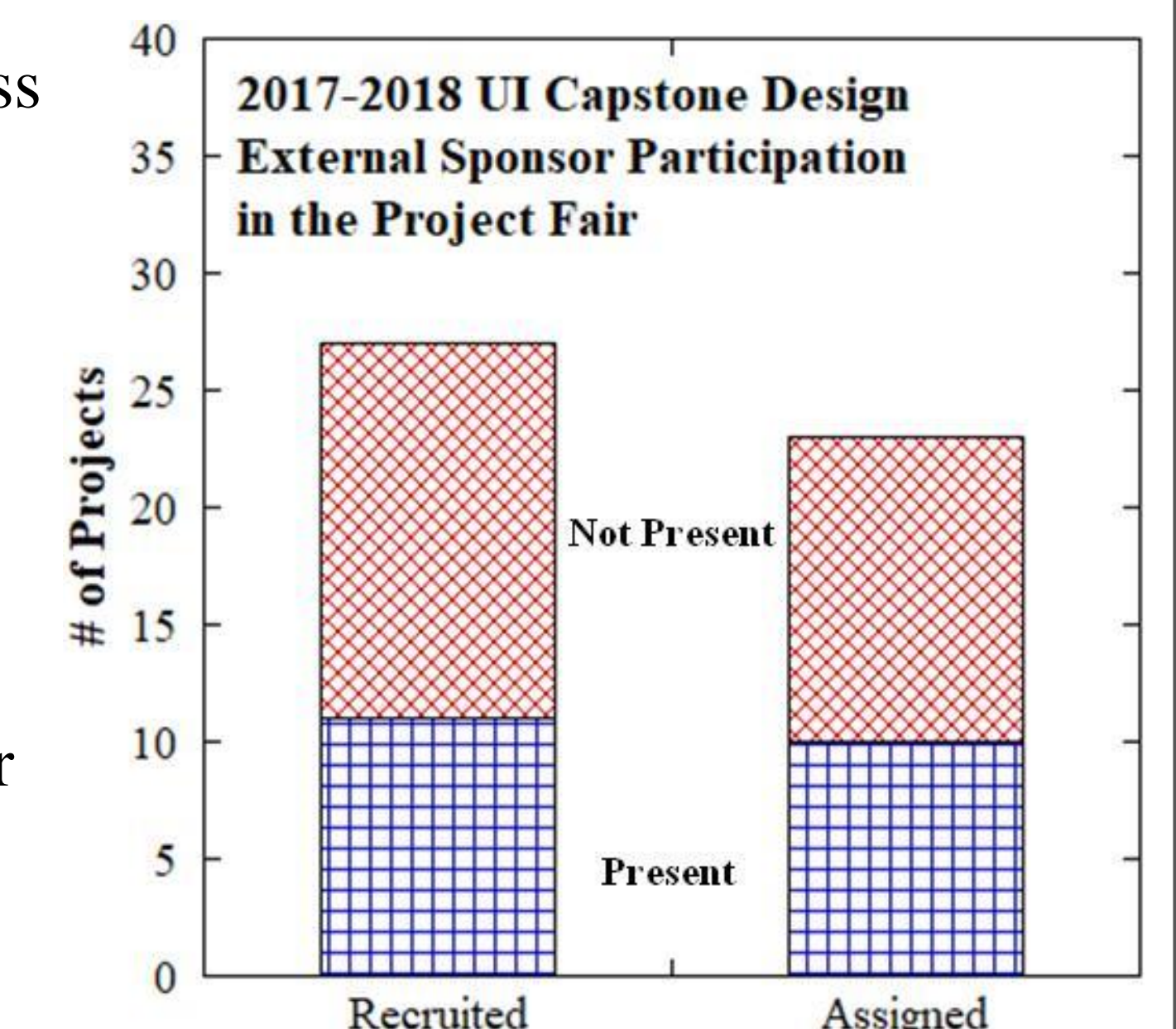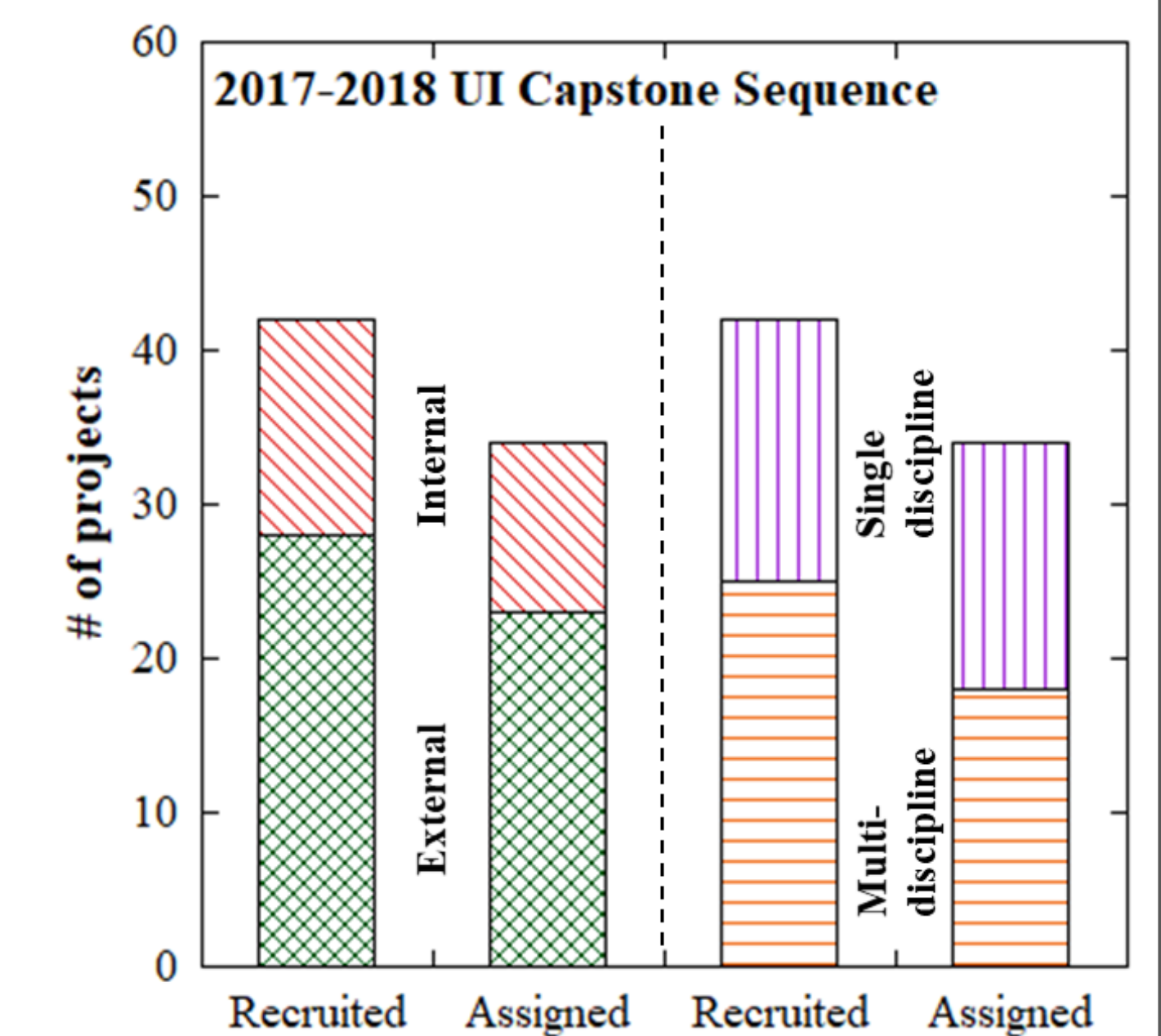
Summary & Next Steps

- With a 1-day Project Fair event, the team formation process is shortened by 1 full week.
- Project Fair format enables more student-sponsor networking
- Sponsor participation in the Project Fair → higher student interest
- Recruiting a surplus of projects allows more flexibility to:
    - ensure interdisciplinary needs of the project are met
    - ensure students are assigned projects they are interested in
- For future Project Fairs, need to allow more time (up to 2-3 hours) for networking and thorough evaluation of all project options