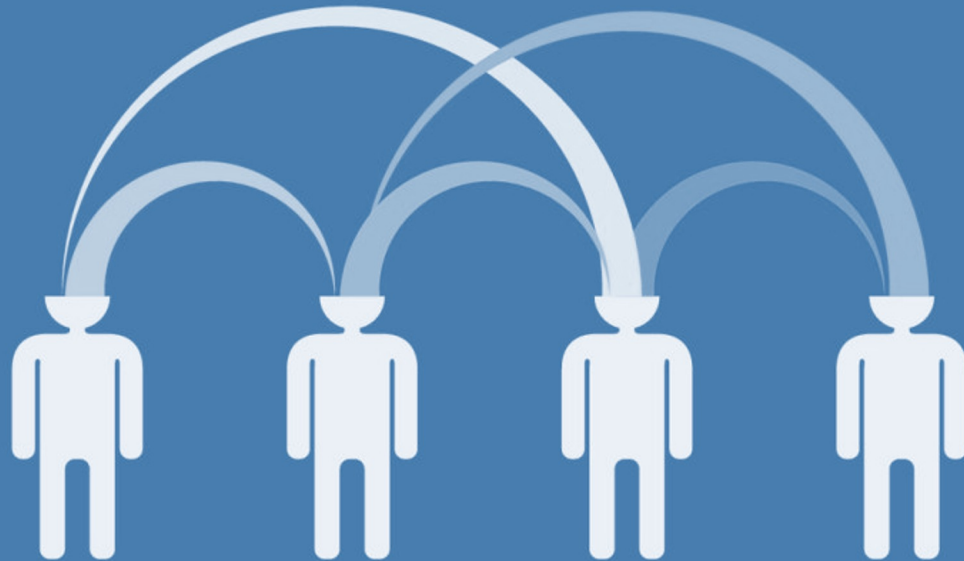


Teams-Based Problem Solving

100% Peer Assessment?!

Dr. Isabel Rabey

Teaching Fellow, Department of Physics



What is Teams-Based Problem Solving?

Teams-Based Problem Solving is an innovative new course which provides students with an **authentic, student-lead research experience**.

Year 3 undergraduates work together in teams of 25 to solve an **open-ended, multi-faceted problem** over the course of a term.

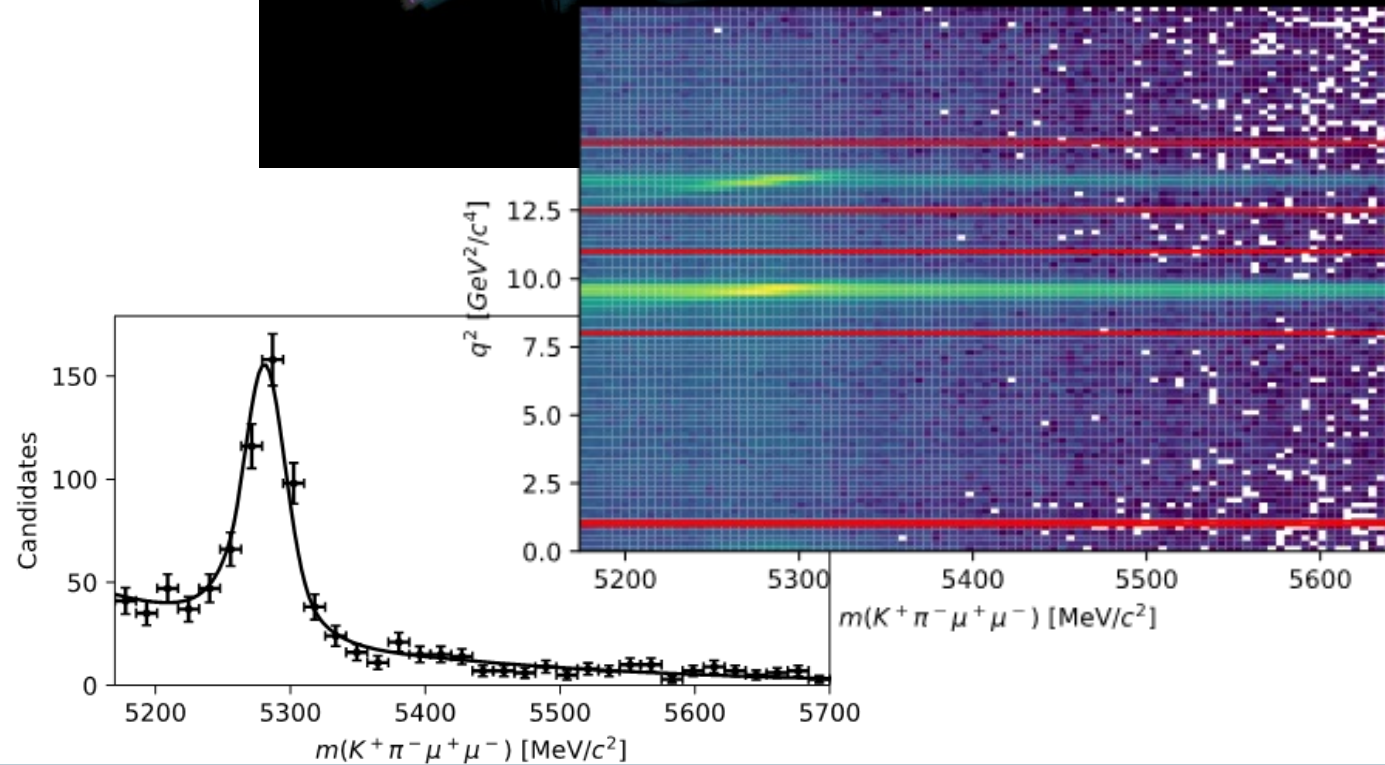
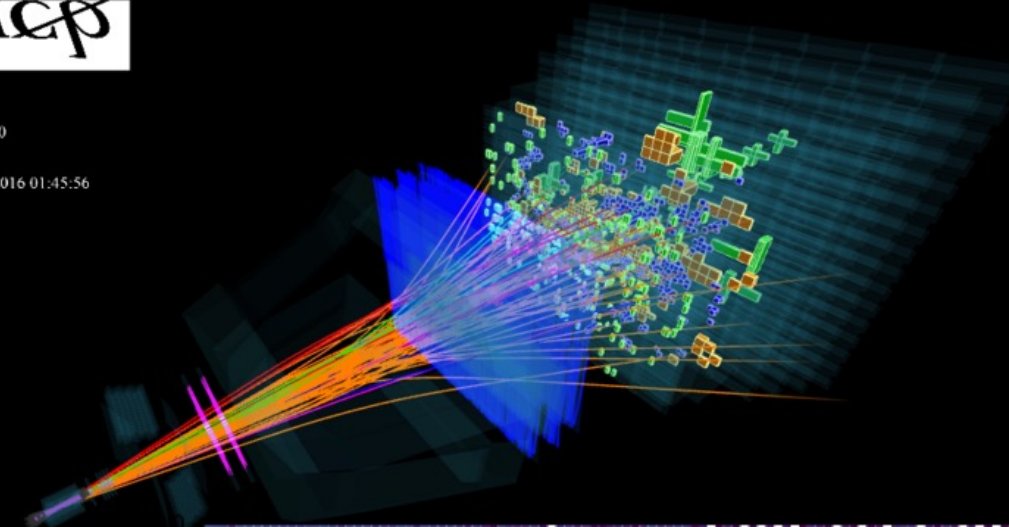
The project

Students are studying a specific particle decay using data from the LHCb at CERN.

This is a **real research topic**, currently under investigation by researchers in DoP.



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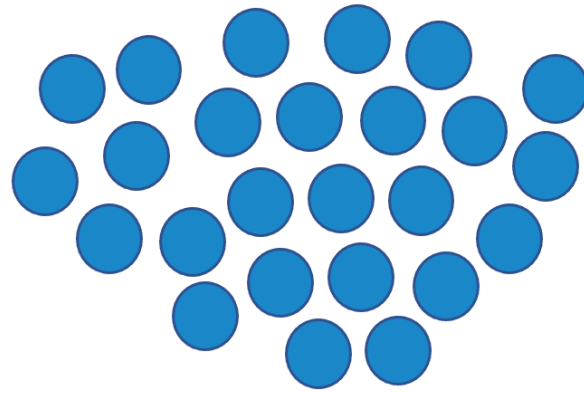
The project

We provide them with:

- The data set
- A skeleton code to get them started
- An introductory lecture
- Weekly in-person tutorials for questions
- A Teams channel for technical questions outside of tutorials
- Videos from the careers service to support team organisation

Students are expected to be **independent** and take **responsibility and ownership** for their project.

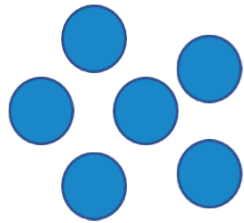
Team work



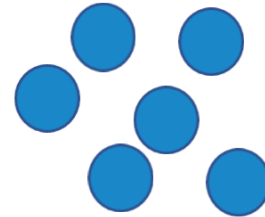
Team work



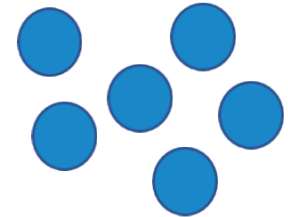
Signal-background



Theory



Acceptance function



Fitting

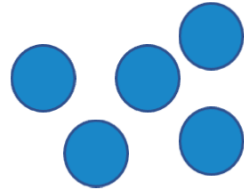
Team work



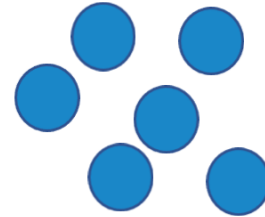
Machine learning



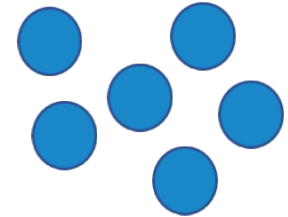
Signal-background



Theory



Acceptance function



Fitting



Team work



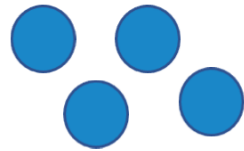
Machine learning



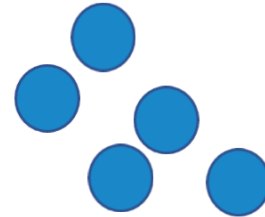
Presentation



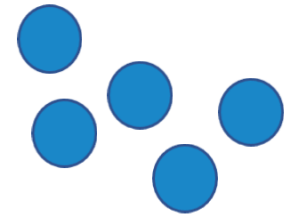
Signal-background



Theory



Acceptance function



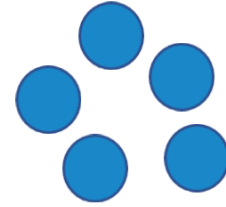
Fitting



Team work



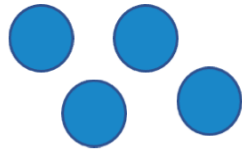
Machine learning



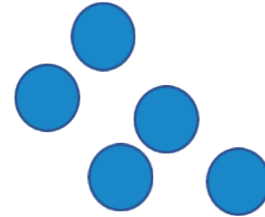
Presentation



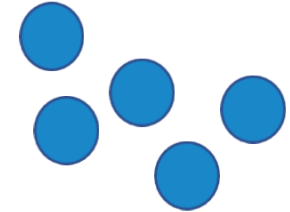
Signal-background



Theory



Acceptance function



Fitting

More than just “group work”, they need to be inter-connected to succeed

How are the teams assessed?

At the end of term, the team presents their work in a 30-minute presentation to the whole cohort, plus 10-minute Q&A.

Teams mark each other

- They are now the experts in the nuances of the project!

They are assessed across 5 categories: **Creativity, Scientific Rigour, Achievement, Team Work, and Presentation Quality.**

Teams mark each other using a restricted marking system. Each team can only give out

2 Outstanding,

3 Excellent,

4 Good,

5 OK,

6 Satisfactory,

over the whole day.

<u>TEAM 1</u>	2	3	4	5
CREATIVITY	EXCELLENT	SATISFACTORY	EXCELLENT	SATISFACTORY
SCIENTIFIC RIGOUR	SATISFACTORY	EXCELLENT	OK	OUTSTANDING
ACHIEVEMENT	OUTSTANDING	OK	SATISFACTORY	SATISFACTORY
TEAM WORK	OK	SATISFACTORY	GOOD	GOOD
PRESENTATION	GOOD	OK	OK	GOOD

How are the teams assessed?

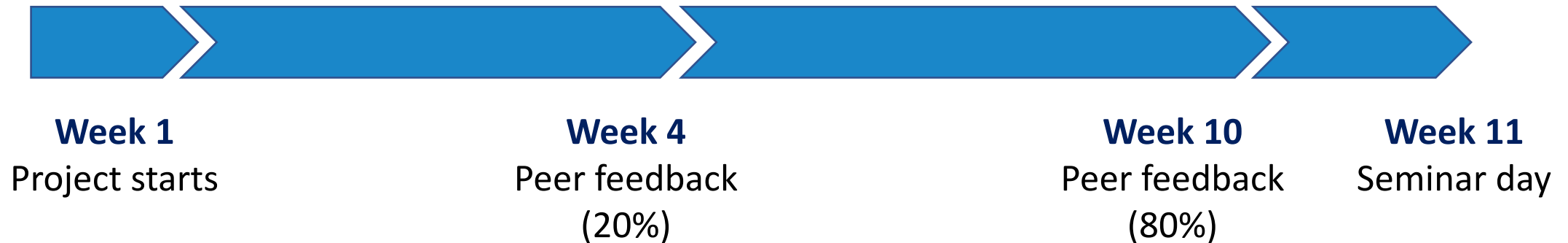
Staff also mark using this exercise

- Student and staff assessment has always agreed, we effectively discard our marks
- Staff calibrate the numerical grades – every team can get a 1st

How are individuals assessed?

Students really dislike “social loafers”

- Peer feedback



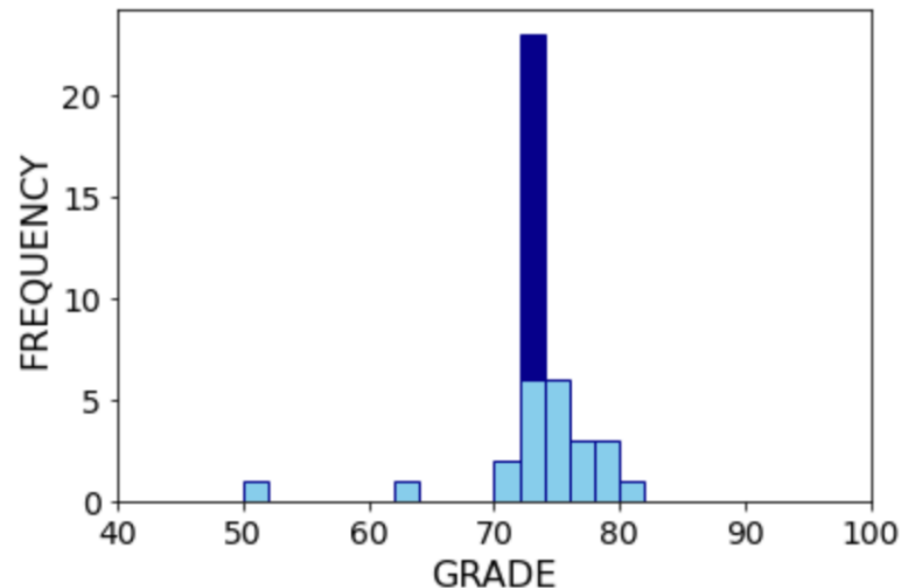
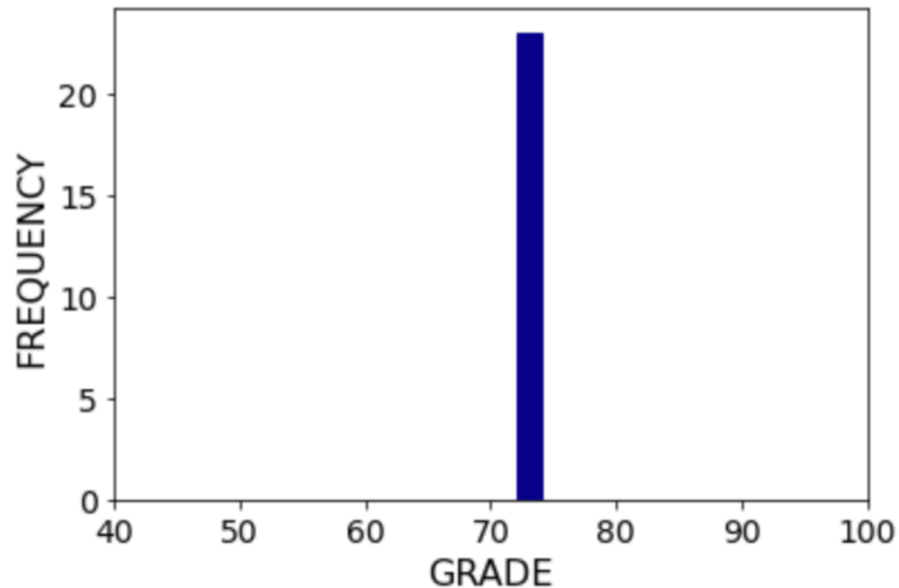
They give scores out of 10 across 5 categories:

Attitude, Participation, Communication, Contribution, and Organisation

How are individuals assessed?

The numerical scores are combined together to create a shift:

- 0 is an average student, + above average, - below average
- The bigger the shift, the further from average the student is



Formative feedback

Things I appreciate...

Week 4: Always contributes constructively to team discussions, even in subjects outside his specific subgroup.

Always presents his work and is willing to discuss it and hear criticism for improvement.

Week 10: Been very collaborative and quick to respond to feedback

Things I request...

Week 4: Could do more communal coding, where we sit as a group and you work us through what you've done, and the rest share what they've done. Also this person could document their code on the onenote page (already done on GitHub, but still!) more often

Week 10: Keep up the same level of eagerness and critique, it helped make sure the project was on the right track

Formative feedback

Please describe and assess your Team's performance overall in this exercise. If complications have arisen, include these here
(max. 300 words). Comments in this box will be kept confidential.

"We are definitely the BEST group, and what truly matters is the friendship we developed through all of this."

"The most traumatising project of my life, can't wait for it to be over but I am glad I've done it."

I do not even know where to start with all the compliments! Our team produced some of the best work I have ever seen, and we did it with such a positive and supportive attitude. But beyond that, I was constantly impressed by the kindness, generosity, and talent of each of you. I think we have created something truly special here, and I can't thank you enough for the opportunity to work together. I am honestly blown away by how talented and dedicated our team was on this project. It's not often that you find a group of people who can produce such high-quality work, work so well together, and still manage to be so friendly and supportive. I think we have set the bar pretty high for any future teams we work with!

The team



Mitesh Patel



Mike McCann



Jon Fenton