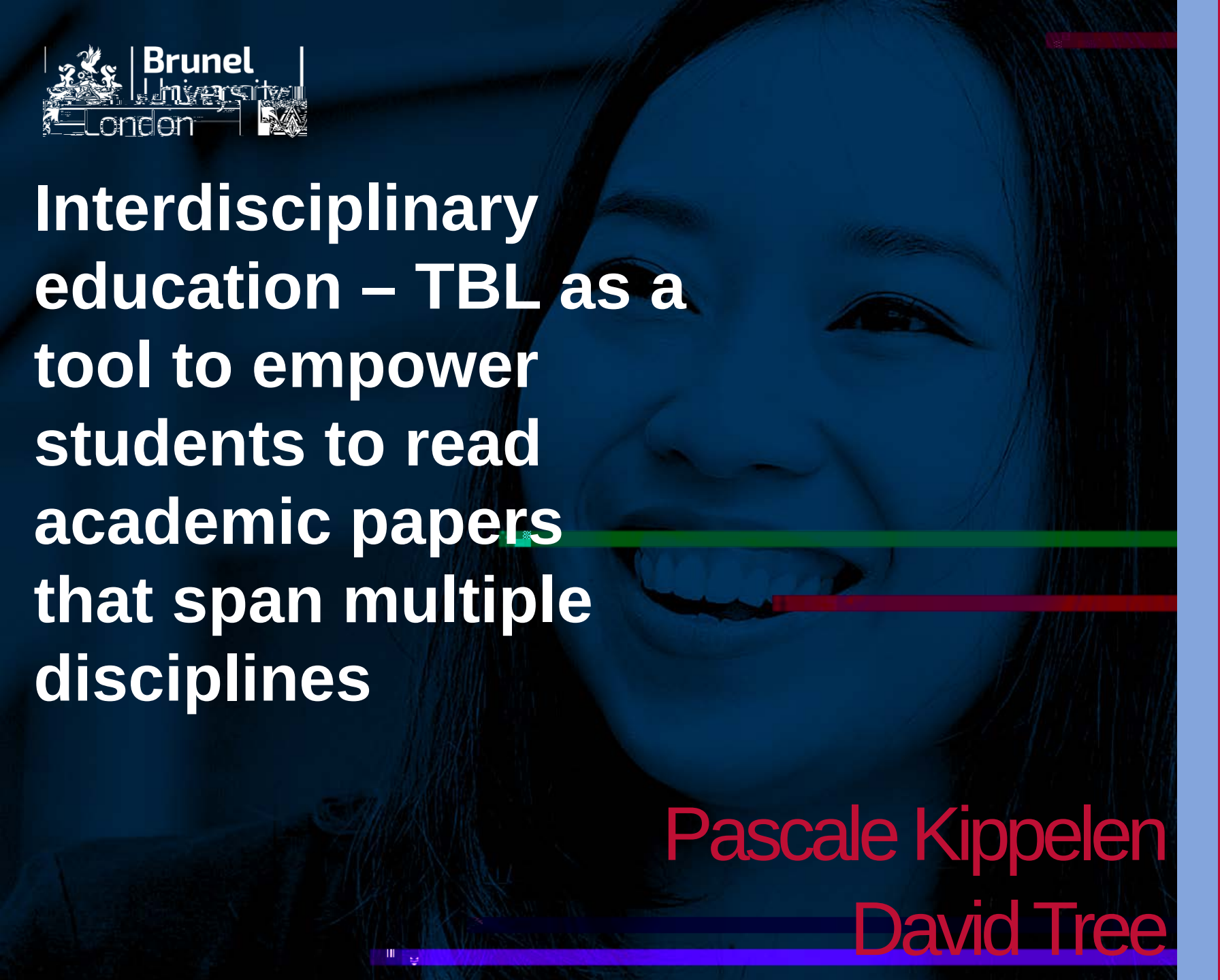
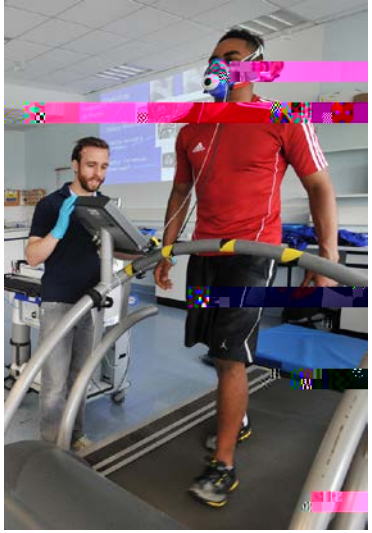


Interdisciplinary education – TBL as a tool to empower students to read academic papers that span multiple disciplines

Pascale Kippelen
David Tree

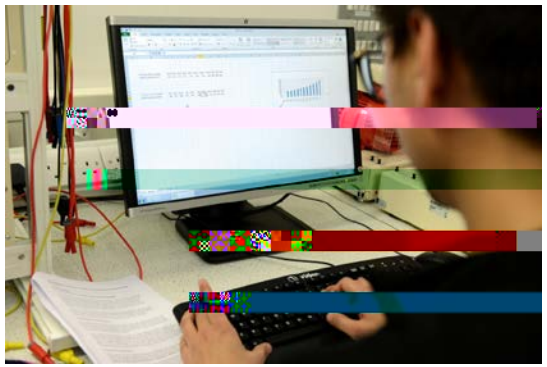
Cell Biology



Physiology
Biomechanics

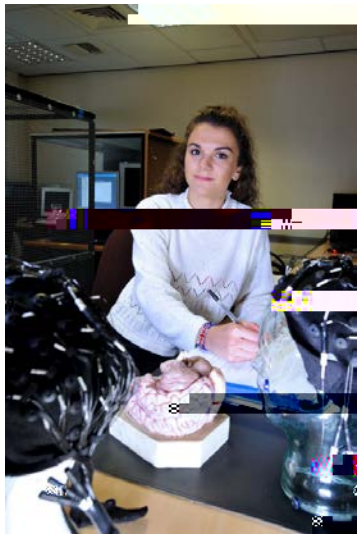
Biochemistry

Interdisciplinary Links



Quantitative Analysis

Ecology



Psychology

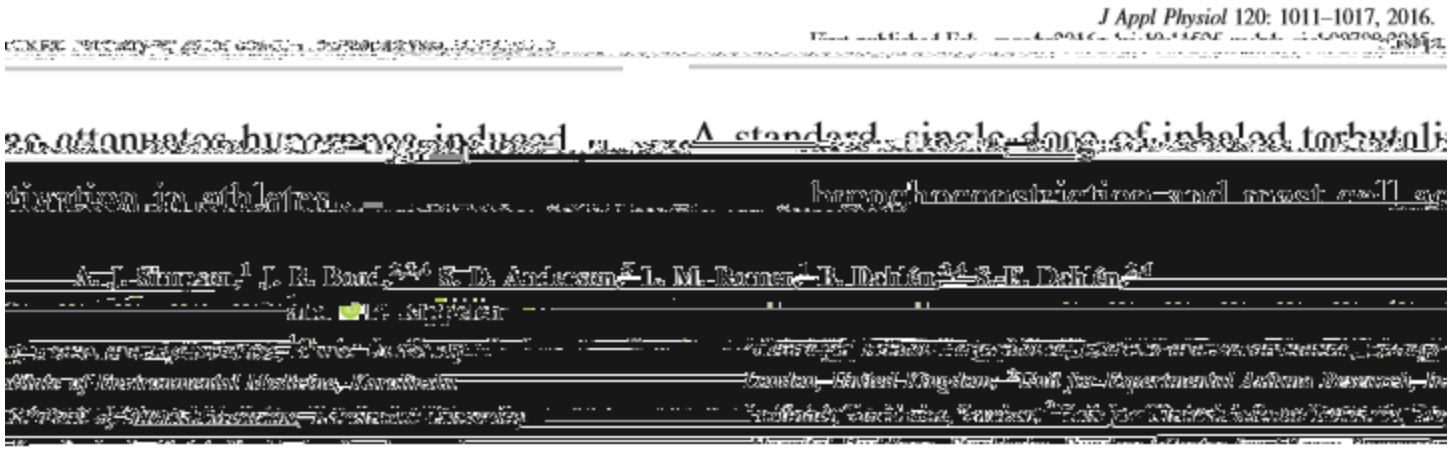
Synoptic Assessment in Life Sciences 1: Teamwork and Presentation

- Teach them to see the interdisciplinary links between different areas of study
- Teach them to read papers from the first week of the first year of their degree
- Underline the importance of statistical analysis in all areas
-

A paper we read

TOPICAL

INTERDISCIPLINARY



RELEVANT

SOUNDS COMPLICATED

Pre-Teaching Activities

THE CONVERSATION

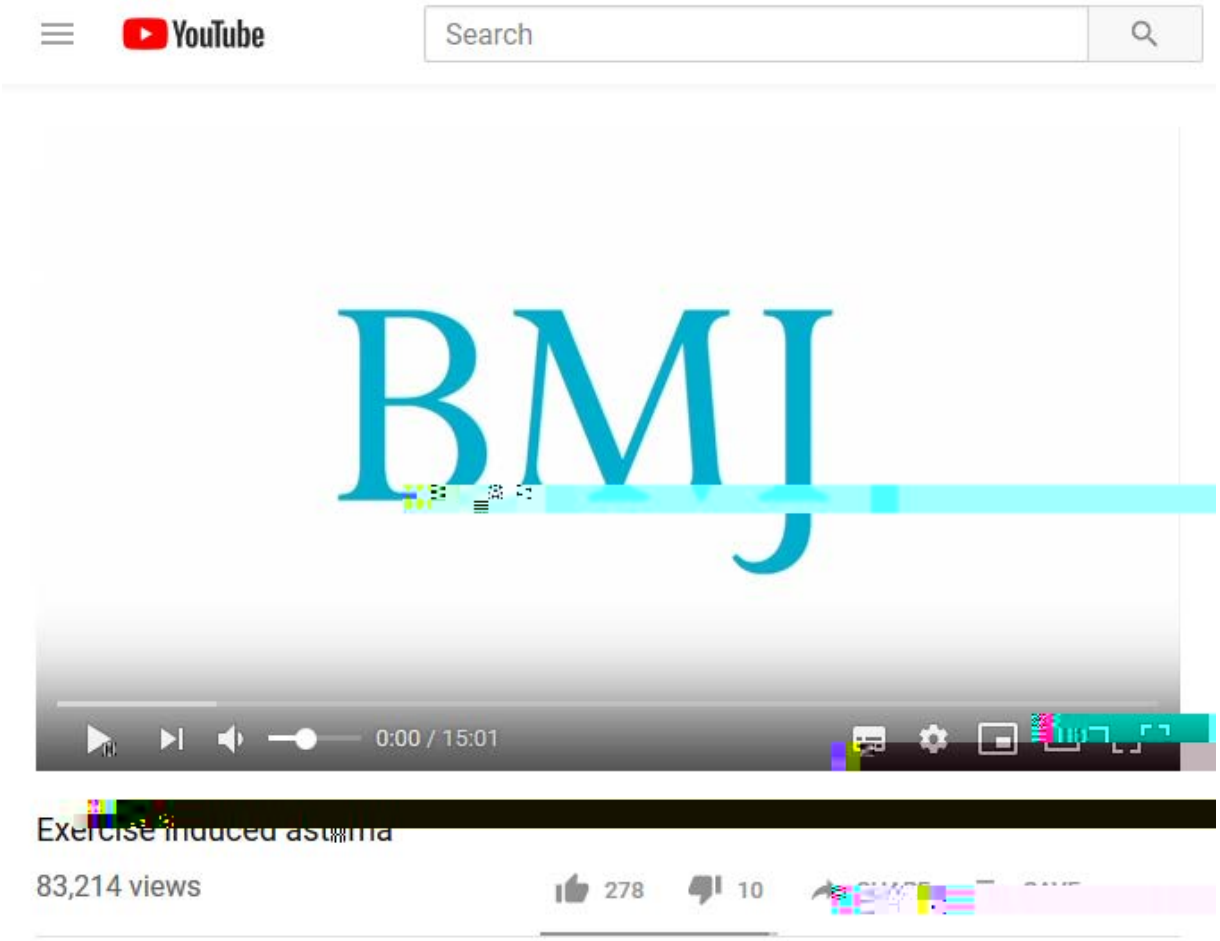
Academic rigour, journalistic flair

Arts + Culture | Business + Economy | Cities | Education | Environment + Energy | Health + Medicine | Politics + Society

Terbutaline: the drug at the heart of British Cycling's week from hell

April 29, 2016 3.24pm BST

Pre-Teaching Activities



Individual Readiness Assessment Test

- Online MCQ so that they learn what all the difficult terms and concepts mean before they start reading

- Learn better finding it out for themselves than being told

Individual Readiness Assessment Test

2. Which is the best definition of hyperpnea?

A. Hyperpnea is decreased depth and rate of breathing and can be either physiologic or pathologic.

B. Hyperpnea is random fluctuation in the depth and rate of breathing and can be either physiologic or pathologic.

C. Hyperpnea is increased depth and rate of breathing and can be either physiologic or pathologic.

D. Hyperpnea is an unvarying depth and rate of breathing and can be either physiologic or pathologic.

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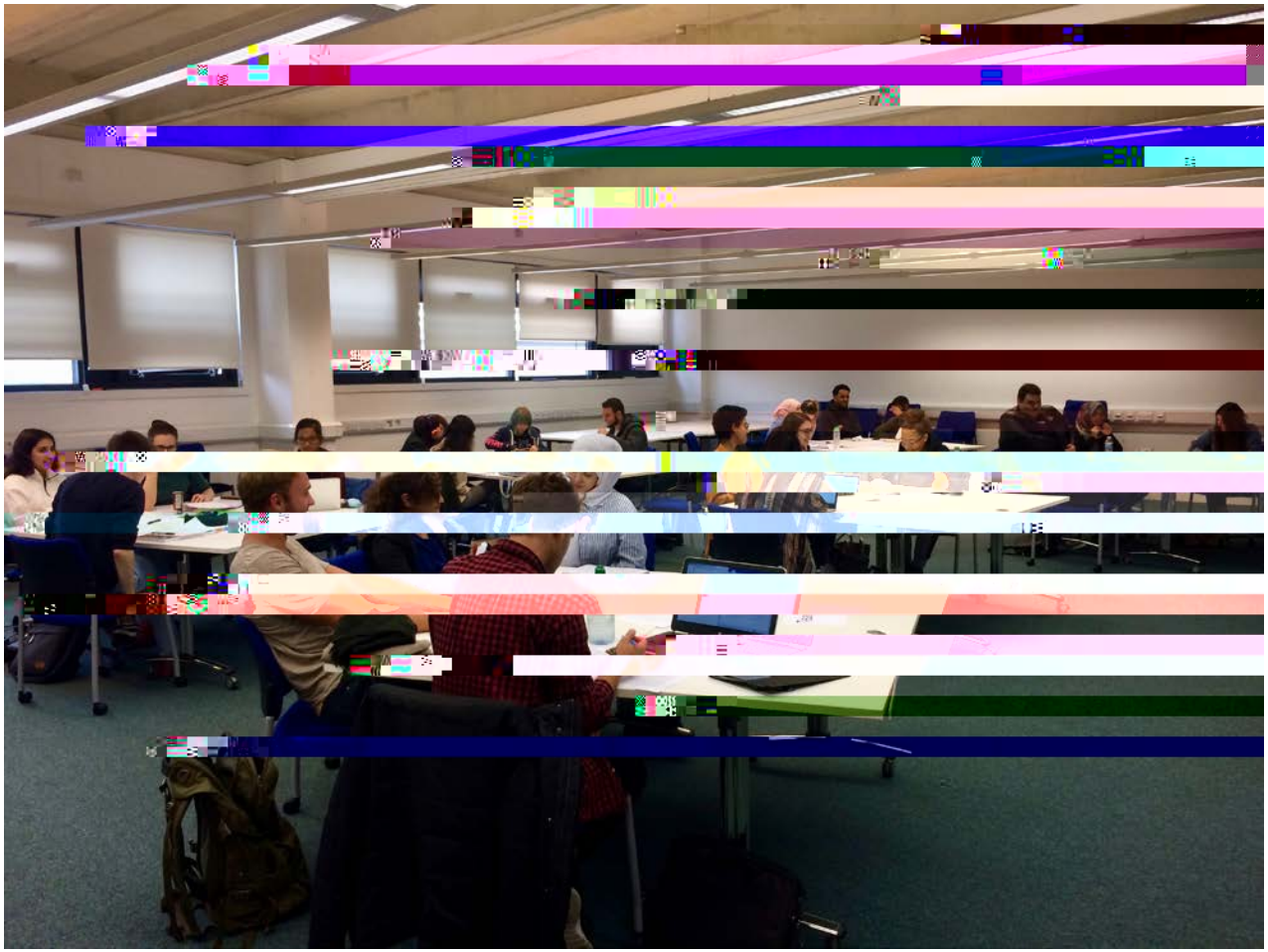
Team Based Learning – 3 Hours



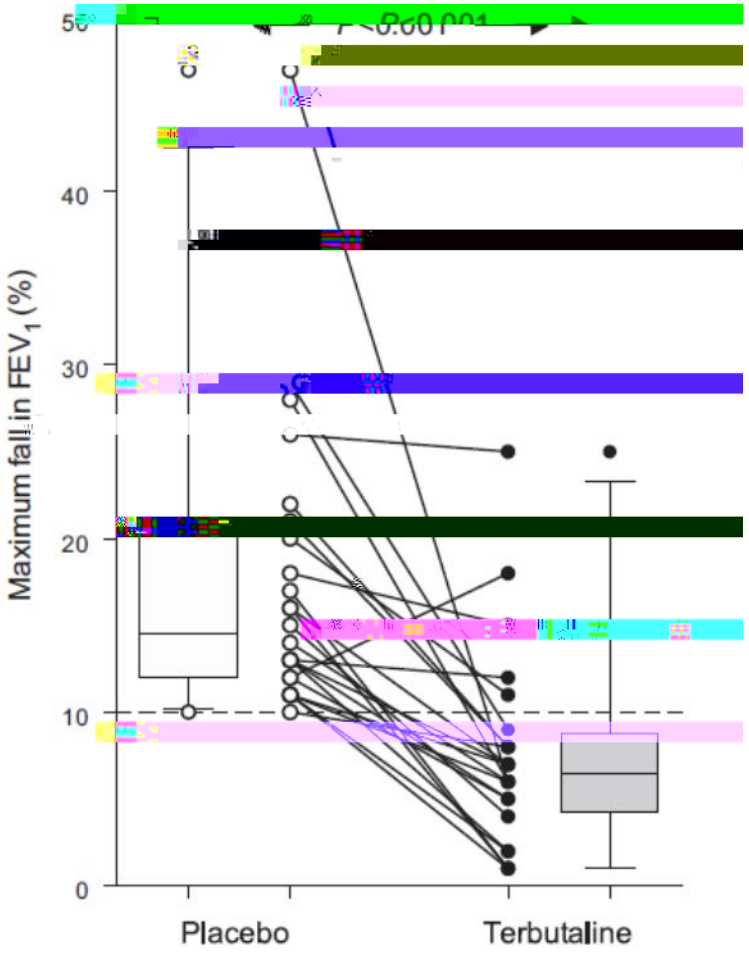
Team Readiness Assessment Test

- First they do the test again as a team

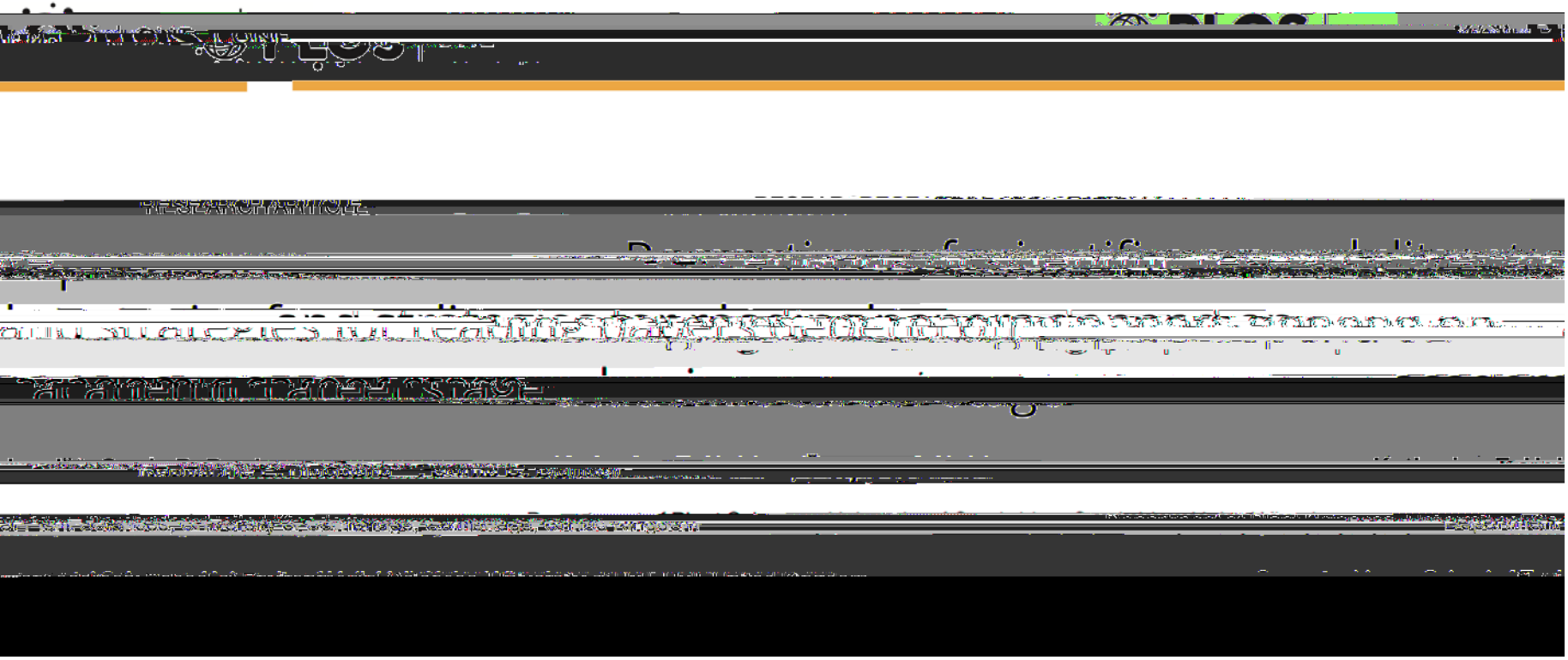
Deciphering the Title!

Teaching Reading Strategies

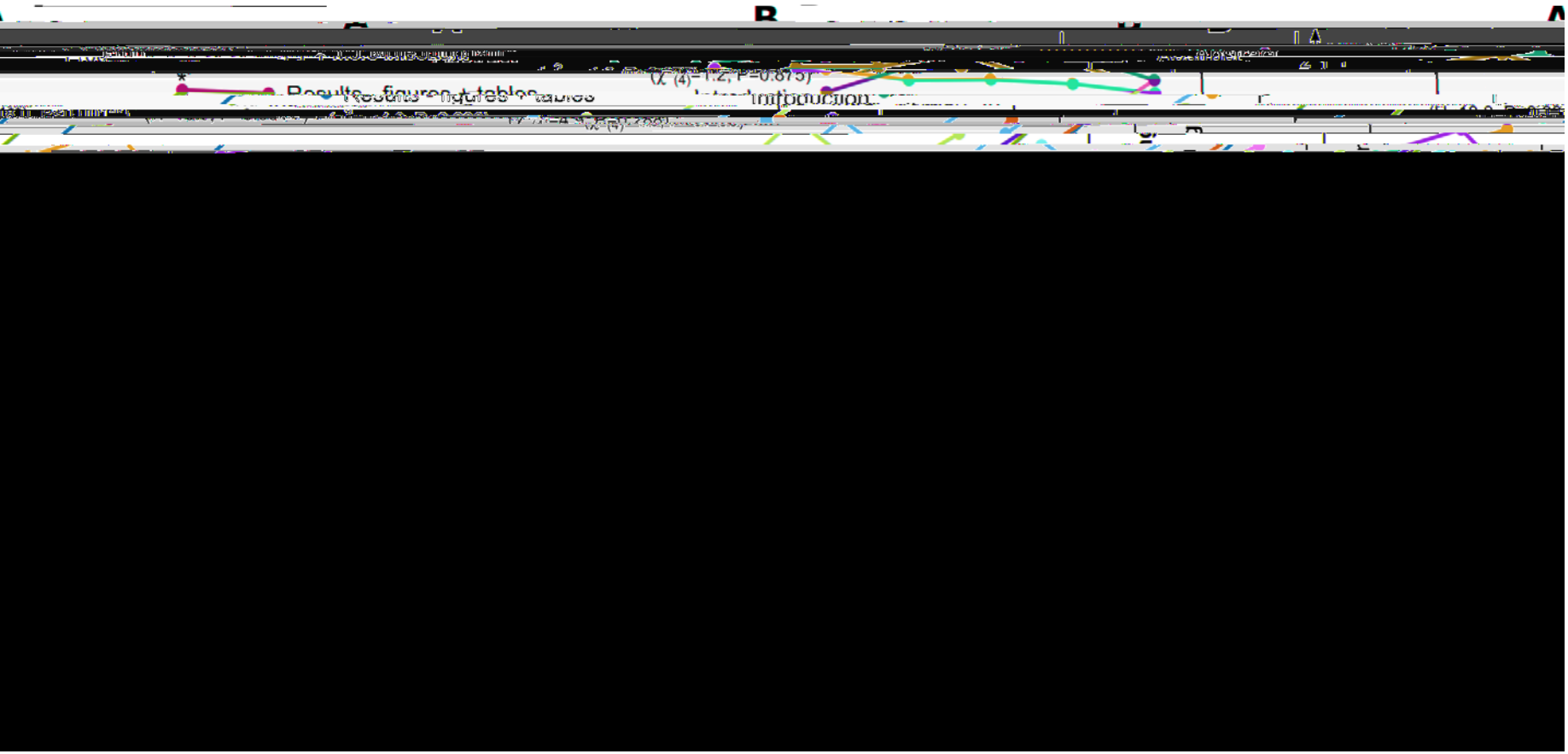
- Read results by understanding figures
- Work through paper and summarise
- End up with a self-written abstract of paper



Explore Reading Strategies

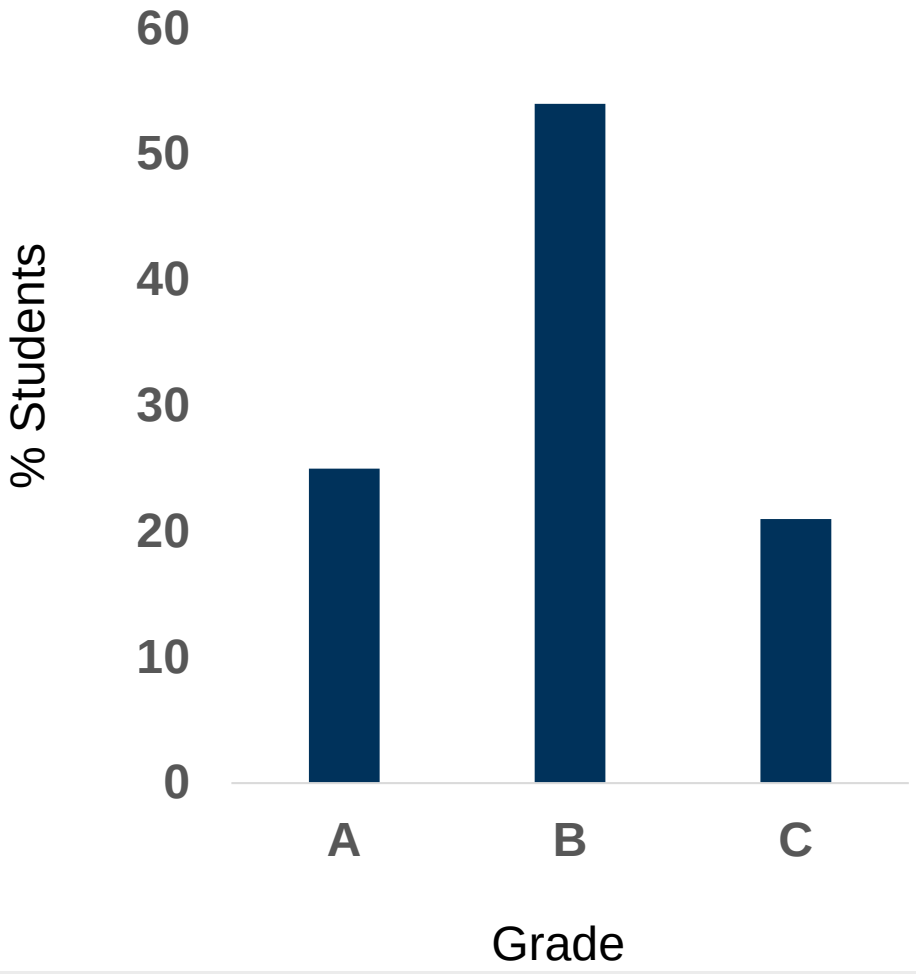


Explore Reading Strategies



Assessment - Summative

- Students given 12 manuscripts (from BioArchive) with no title or abstract
- Individuals wrote a 500 word abstract describing it



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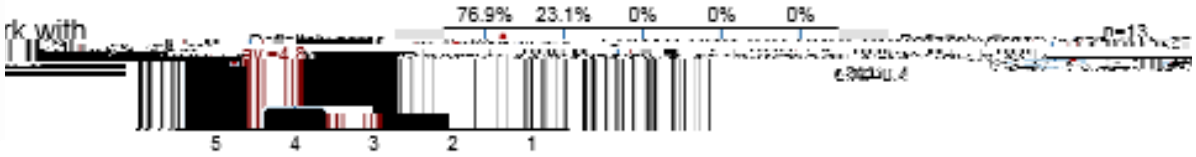


What overall suggestions would you give for improving this study block

- It can be rather taxing to work continuously for three hours on a difficult academic paper, so a short break halfway through the session would be appreciated.
- I would make it 2 hours because this module was the longest. Other than that, everything was perfect, but a little bit demanding with the amount of hours.
- I think for some of the sessions we had they didn't need to be 3 hours long!
- To be shown structure of how to write abstract
- **Nothing needs be improved**

What were the most positive, helpful or enjoyable aspects of this study block?

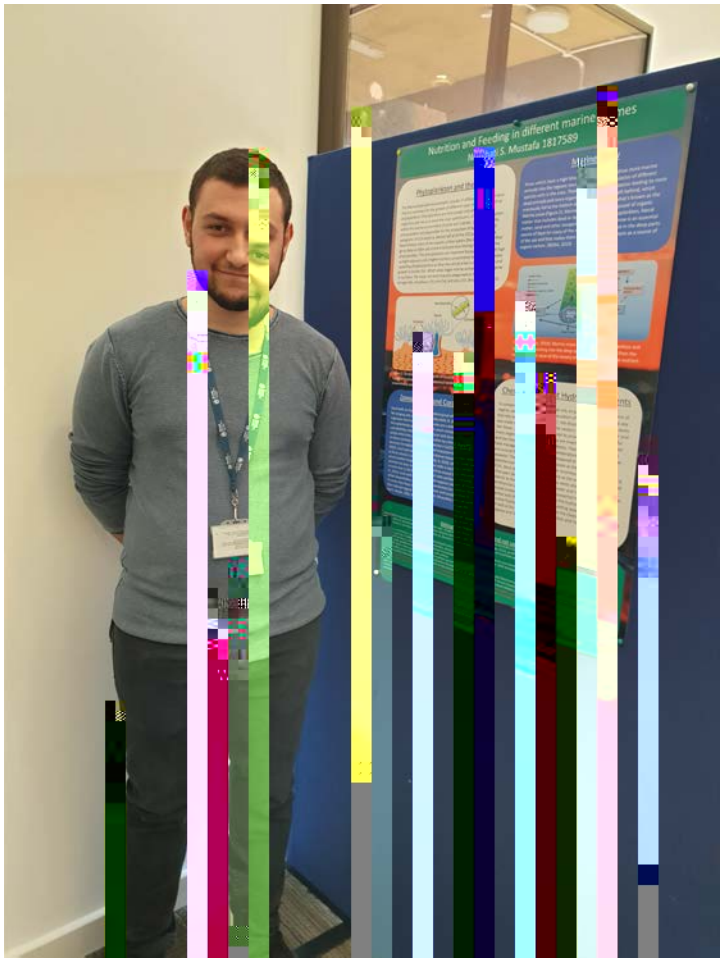
- Test and web links provided before the lecture help a lot to understand what the articles will be about.
- Team work was very enjoyable and the standard of teaching were high.
- Getting to know and work with different people.
- Working in groups, I definitely spoke to people that I wouldn't have necessarily made friends with. I liked it when the author of the article came to speak to us, it made me understand it more.
- Finding out and understanding that reading scientist article is not as difficult as it seems to be. Also getting to use this reading skills in other relevant modules is useful.
- The papers that we've got to read - they were very interested and well structured. Also, in the sessions we had the opportunity to interact with the people who've actually written the papers which was utterly amazing.

Conclusions

- First year undergraduates can read and understand a scientific paper on complex interdisciplinary themes...
- ….but only if you provide the right context and support
- Student feedback mostly positive, but doesn't really mention interdisciplinary; so we have work to do!
- Subsequent years, synoptic assessments will build on interdisciplinary study and paper reading
- "Meet the authors" a good way to engage students in reading and learning

A Post-Script

- For Biosphere Students had to make a poster from 5 papers
- They did great!
- “The poster assessment was interesting and was helpful in a way that we could practice the skills we had learnt from the teamwork and presentation lectures.”



Thank You

- Fotios Drenos
- Amanda Harvey
- Michael Price