Transitions: From Undergraduate Mathematics to Research in Mathematics

John Parker
Durham University

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Answer is No (or at least, not always):

- ▶ Urban myth: Albert Einstein
- ▶ Stephen Smale – got B's, C's and an F as undergraduate and taught postgraduate, but went on to win the Fields Medal.
- ▶ 'Student A' – scored 100% in majority of exams but dropped out of PhD within months.

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The transition to being a research student is more subtle than we sometimes think – or than our procedures often allow for.

Differences between learning mathematics and research

Academic

- ▶ From neatly packaged ideas to exploration of new concepts and modelling.
- ▶ From closed problems (eg homework assignments) to open ended problems (eg explore this idea/data/model....)
- ▶ From certainty to uncertainty.
- ▶ From 'performance' to 'composition'; or 'actor' to 'author'.

Social and cultural

- ▶ From being part of a crowd to working in a small group or individually.
- ▶ From having a structured timetable to own time management.
- ▶ Working closely with supervisor/adviser.
- ▶ From student life to being a 'real person'.
- ▶ For many adjusting to a new city – or country.

Ways to support students making the transition

- ▶ Being aware of the difficulties.
- ▶ Investing in the supervisor/student relationship.
- ▶ Making sure new students feel part of the Department/School.
- ▶ Support from research group or student cohort (reading seminars, tailored research training, buddying).
- ▶ Events for research students from different universities.
- ▶ Practical development such as soft skills training courses (eg time management, writing skills).
- ▶ Social activities – making sure they are accessible for the particular student.

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Discussion:
What is your experience?
Do you have any good ideas that others can use?
Do you have success stories we can learn from?