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Postgraduate Study & Interesting Careers

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- **Final Message:-**
  - If you want an interesting job that uses **statistics** then take a postgraduate degree
- MSc in Statistics:-
  - 1 year full time
    - Two semesters taught courses + dissertation over summer months
  - 2 or 3 years part-time
    - Evenings (e.g. Birkbeck)
    - Distance Learning
      - (e.g. both Sheffield Hallam & University of Sheffield)
- PhD in Statistics
  - 3-4 years full-time (+ often MSc first)

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- **My Role:-**
  - University of Sheffield
    - Department of Probability & Statistics
  - Postgraduate Admissions Tutor for MSc & PhD
    - MSc in Statistics
    - MSc in Statistics with Financial Mathematics
    - MSc in Statistics with Medical Applications
  - MSc dissertation supervisor
    - usually on projects provided by outside clients
  - Supervisor to several PhD students
    - (including several sponsored by industrial companies, including 6 by EPSRC CASE studentships, see later)

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- **My Background:-**
  - First job (for 9 months):-
    - assistant in Statistics Section of Mining Research Establishment (Coal Board)
  - Followed by Degree in Mathematics (3 yrs)
    - (mostly Pure Mathematics but some Applied)
    - + **MSc in Statistics** (1 year) + PhD (2 years)
  - Lecturing jobs in Universities of Edinburgh, Hull & Sheffield
    - with consulting secondments to Germany, Australia, Egypt, Finland, ……

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- A BSc/MMath degree in Mathematics & Statistics is a valuable qualification
  - Key [entry] qualification for many careers
    - Actuarial / Accountancy
    - Government Statistical Service
    - Industry
    - Teaching
    - ……..
- **BUT**
  - Typically you will rarely use mathematics
    - Mathematical training will be valuable but only rarely will you perform statistical analyses & 'do mathematics'

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- **Pragmatic Reasons:-**
  - **It is interesting & people enjoy it**
  - Easier to get a job
    - ~50% more MSc/PhD graduates in employment within 6 months of graduation than BSc/MMath graduates
      - though beware of 'selection effect'
      - many postgraduates take time out between BSc/MMath and MSc/PhD
  - Paid more with an MSc
  - Paid even more with PhD
  - Some employers will not consider any qualification less than MSc
    - e.g. some pharmaceutical companies
  - Some target PhD graduates specifically
    - e.g. some pharmaceutical companies

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- **Also useful if you intend to do a PhD**
  - In some places most PhD students have done an MSc
  - Why do a PhD??
    - even better jobs
    - even higher salaries
    - even more interesting ….
  - Also possible to do MSc in other subjects in Pure or Applied Maths
    - very few courses available
    - very limited funding available

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- Qualifications needed:-
  - **MSc:-** 1st or Upper 2nd BSc/MMath in Mathematics (with some Statistics) or highly quantitative subject with a lot of statistics
    - Qualifications different for different Universities
    - Some preliminary 'conversion'/upgrading courses available
      - Graduate Diploma or Graduate Certificate
- **PhD:-**
  - 1st in BSc/MMath [exceptionally 2(i)] or 2(i)+Distinction in MSc
- The better the qualification the better the chance of funding

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- **MSc Courses:-**
  - Typically lecture courses (+ exams) followed by dissertation over summer
    - Courses **:** Dissertation **~** 66% **:** 33%
    - Often on practical problem involving data analysis and often involving an outside 'client'
      - Some dissertations may be reviews or some more theoretical topic
    - May be from another Department of the University or from outside industry
    - GSK supply many projects to several MSc courses

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- **Advantages to employers:-**
  - Coherent training in statistics including data analysis skills
    - (Packages, data manipulation etc)
      - Not just a mix of various maths/stats courses as in most first degrees
  - Dissertation gives experience of extended work on a problem involving several aspects
    - ***Including writing a detailed extended report***
  - Dissertation work may give experience of communication and working in a team with scientists in other disciplines
    - Not experienced in first degree

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- Some employers will sponsor employees to take a part-time MSc
  - Usually have to obtain job first & then ask
- Some courses have studentships available to cover fees &/or living
  - See **RSS Careers** WEB pages for details
    - Main courses are at Kent, Leicester, Reading, Lancaster, Oxford, Sheffield, UCL, LSH&TM, Southampton, Sheffield Hallam
    - Apply to course and then apply for studentship

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- **Are all MSc courses the same?**
  - No, some specialize in Medical Statistics
    - Leicester, Southampton, (Lancaster)
  - Others in Biometric Statistics (Reading)
  - Others are wider ranging
    - Sheffield, Oxford, (Lancaster)
- Graduates go into ***research-orientated*** teams
  - Biomedical
  - Financial
  - business
  - pharmaceutical
  - local and & Government organisations
  - Higher Education organisations
  - & **PhDs in same or different Universities**

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Applications

- It is best to apply November – February
  - Unwise to delay > April
  - Most bursaries are decided in Feb – March
  - Apply separately to each University/Department
  - Usually have to send 2 **academic** references in sealed envelopes together with application form

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- PhD in Statistics
  - 3-4 years of research often preceded by a ***Research Training Programme***
    - Includes advanced courses, computing, information retrieval, etc…
    - See also ***Academy for PhD Training in Statistics***

      http://apts.ac.uk
  - Often supported by EPSRC (NERC, MRC)
    - All fees + non-means tested maintenance bursary
      - **Statistics PhD students get ~£1500 more grant than Mathematics**
  - Sometimes by a EPSRC CASE studentship
    - Collaborative Award in Science & Engineering

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- CASE Studentships:-
  - Work on a project provided by a company
    - **Higher maintenance award (+£3,500)**
    - Spend some weeks each year working in company
    - Practically motivated research problem
  - Graduates ***highly*** employable
    - either by same company or 'similar'
  - Usually advertised on ALLSTAT in Jan-March

    http://www.jiscmail.ac.uk/lists/allstat.html
    - (or google allstat)

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- Questions
  - or come and talk later
  - or email

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