# SYNTHESIZED results of data gathered from faculty, 2019 EOAS retreat.

| *Results from asking:* "List quantitative skills & learning students are exposed to (or you would like to see them use) " | | | | | | |
|---|---|---|---|---|---|---|
| **Types** | ATSC | ENSC | GEOE | GEOL | GEOP | OCGY (3 types) |
| **basics** | Algebra, trig, excel, some statistics | Integrated excel workbook | - | Integrated excel workbook | - | - |
| **spatial** | - | GIS skills | Geospatial analysis | Geospatial analysis | - | - |
| | - | Geospatial analysis | - | GIS skills | - | - |
| **datavis** | - | Plotting graphs | - | Analyze / interpret data | - | Data Visualization |
| | - | Interpreting graphs | - | Plotting graphs | - | - |
| | - | Presentation – data visualization | - | Interpreting graphs | - | - |
| | - | Analyze / interpret data | - | Presentation – data visualization | - | - |
| **big data** | - | Working with large data sets | Data mining / handling | Big data / data filter | - | - |
| **stats** | - | Basic geostatistics | Geostatistics | Propagating uncertainties | - | Biostats |
| | - | - | Stats | Basic geostatistics | - | - |
| **adv. Math** | - | - | Practical num. methods (MEng) | - | vector calculus | Calculus |
| | - | - | Monte Carlo | - | ODE's | - |
| | - | - | Advanced Maths (ODE parabolic / PDE hypabolic) | - | tensor analysis | - |
| | Linear Algebra | - | Linear Algebra | - | PDE's | - |
| | - | - | - | - | Inverse probs and parameter estim'n | - |
| | - | - | - | - | numerical analysis | - |
| **physics** | - | - | Stress & tensors (eng. geology) | - | conservation laws | - |
| | - | - | Mechanics: solid and fluid | - | - | - |
| **coding** | Matlab / R | Intro to "R" | Computing | - | - | Coding |
| | Python | Intro to "python" | - | - | - | - |
| | GiT | Intro to "matlab" | - | - | - | - |
| | Linux (command Line) | - | - | - | - | - |
| | Basic Coding (fun's, debugging. Etc.) | - | - | - | - | - |
| **field** | - | Collecting quant've field data | - | Collecting quant've field data | - | - |
| **other** | Building web-facing portfolio | - | - | - | - | Writing |

**Comments**

these are based on unconstrained responses, although (presumably) involving group discussions

followup should involve listing all and asking everyone to revisit forced-option questions based on these topics and maybe others.

| *Responses to:* "What quantitative skills would you expect students to have when entering this specialization (at the end of first year)? | |
|---|---|
| **ATSC** | 1st year physics, calculus (not including/using ODE's and PDE's), stats, algebra and trig |
| **ENSC** | Practical knowledge of computers (eg excel) |
| **GEOE** | Basic computational thinking / Bacis math & physics / stress and Mohr coulomb - basic mechanics / Units, significant digits, orders or magnitude |
| **GEOL** | Chemistry / physics / calculus / algebra |
| **GEOP** | Integral & differential calculus / Mechanics & dynamics / Electricity & magnetism |
| **OCGY, 3 types** | Calculus, algebra (1st year math) / 1st year physics & chemistry / Highschool biology |