Key messages from the EOAS Specialization Survey

EOAS undergraduates responded to the survey prepared, deployed, and analyzed by Alison Jolley, Science Teaching and Learning Fellow, EOAS, March 2020 (alisonjolley@gmail.com). This summary by F. Jones.

Conclusions – paraphrased

128 students provided data. All 7 degree specializations and all 3 year-levels were represented. This large diverse dataset provides insight about student experiences across EOAS specializations including types of interests, pathways and students' perceptions. Some conclusions are:

- To learn about specializations, students mainly use the UBC Calendar and EOAS website. Geological engineering relies more on word of mouth but is fully subscribed.
    - **Recommendation (marketing)**: update both EOAS and UBC web information describing EOAS specializations and consider alternative marketing strategies.
- Those in quantitative EOAS disciplines are not choosing their major because of 100-level courses.
    - **Recommendation (marketing, 1st yr course)**: Create a 100-level course that showcases the quantitative links with EOAS may be an opportunity to increase awareness of these disciplines to other students.
    - **Recommendation (marketing)**: Partner EOAS faulty in required 1xx courses such as math and physics.
    - **Recommendation (marketing)**: increase involvement in 1st year "choose your specialization" events.
    - **Recommendation (marketing)**: Develop other inspiring marketing strategies.
- The majority (over 80% of respondents) of EOSC BSc students aim to enter the workforce upon graduation. In particular, 18% of respondents say "grad school" or "research" (not counting engineers) when asked about intended careers, and 80-100% of respondents in engineering, geology, geophysics and atmospheric science programs intend to register as professionals.
    - **Recommendation (curriculum):** review and update course requirements to better reflect needs of the majority of students.
    - **Recommendation (stu. support):** generate guidelines for geophysics and ATSC students regarding courses and sequences necessary for professional registration.
- Most students want better information about career pathways, professional registration, and related choices about courses.
    - **Recommendation (advising)**: emulate strategies used by others (Geological engineering, Geology, and/or UBC0-OK Department of EEGS) to provide career and specialization information, including better professional registration information
    - **Recommendation (marketing)**: highlight and showcase the professional options for 1st yr students, e.g. at the Dept's introduction day in September.
- All students need programming to address **stress management and well-being**. Geological engineering students in particular report significant challenges with the high course loads. Is this the responsibility of instructors, courses, programs, departments, faculty or institutions? Or do all levels have a part to play?
    - **Recommendation (stu. support)**: a persistent goal for all student support initiatives is to ensure students can apply their attention and energy on learning without the burden of unnecessary stresses.
- Sense of community is strong in some programs but could be improved in others. Students are particularly interested in interaction with graduate students, faculty and staff.
    - **Recommendation (stu. support):** Departmental should help undergraduate clubs to facilitate Dep't, graduate, research and inter-club interactions for networking, social and academic purpor.
- **Appreciation:** EOAS initiatives related to field schools and quantitative / computing education are serving the growing interests of the student population well. They promise to keep EOAS at the cutting edge of science education.
- **Appreciation:** Students are largely positive about their learning experiences in EOAS. *They particularly appreciated their interdisciplinary and practical courses and the enthusiastic and knowledgeable faculty in EOAS that clearly care about their students.* They also value their opportunities to provide feedback and shape the future of the department.

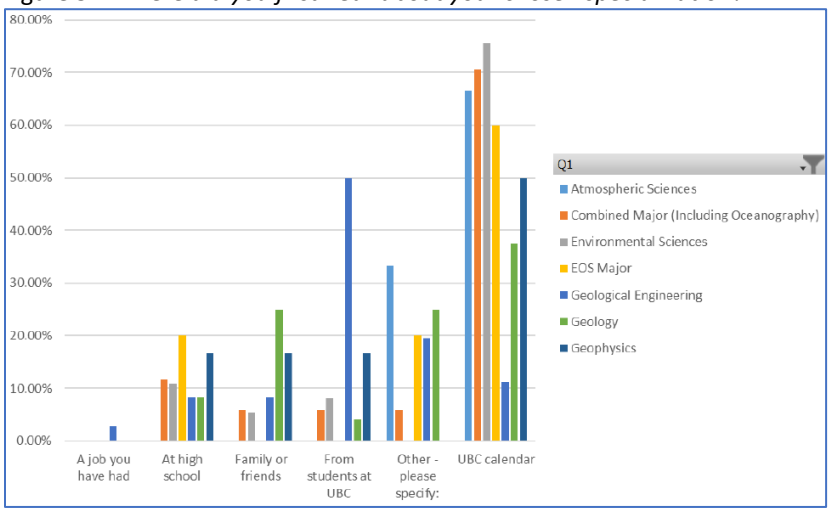
This work serves to inform EOAS on many aspects of the student experience. By and large, student experiences are positive, though with considerable room to be enhanced. Continued work of this nature will only further inform the department of how to best target such enhancements, in the best interest of the departmental community.

From survey data

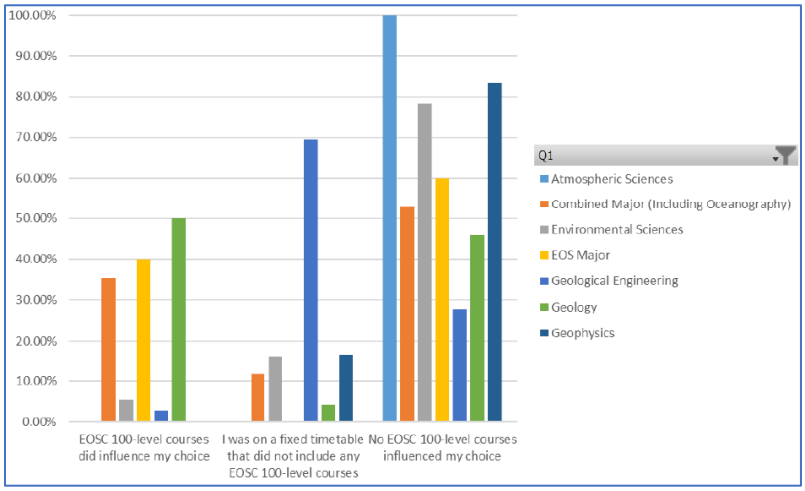
- **English language**:
  - EOS major is the only specialization where more than half of student households spoke something other than English as their first language growing up.
  - Self-assessed perception of reading/writing ability: >70% *except* engineering.
  - Is there an argument for targeting ESL students to consider QES?

- **Working students**: Most students appear to have jobs requiring 10+ hrs per week during term.
  - Can we highlight linkages between student work opportunities and study in QES?

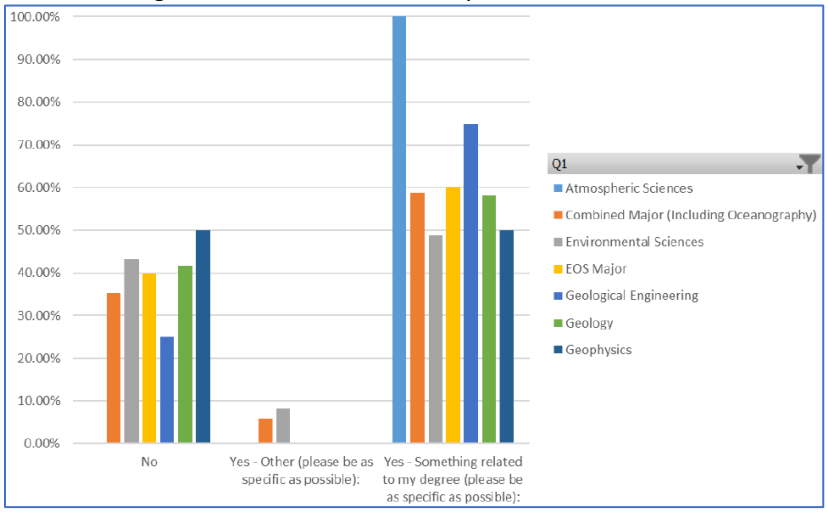
- **Finding EOAS degrees**: For students in all of EOAS specializations except engineering, the UBC calendar was the most common place that students first heard about their specialization.
  Figure 5: "*Where did you first hear about your chosen specialization?*":



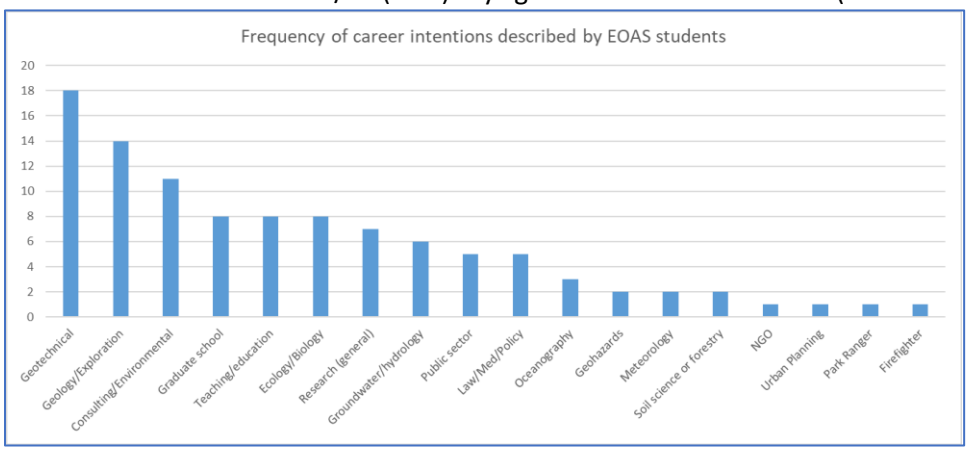
- **Did EOSC 1xx course influence your choice**? 30-40% of Combined Majors, EOS Majors and Geology students said "yes", fewer than 10% for others.



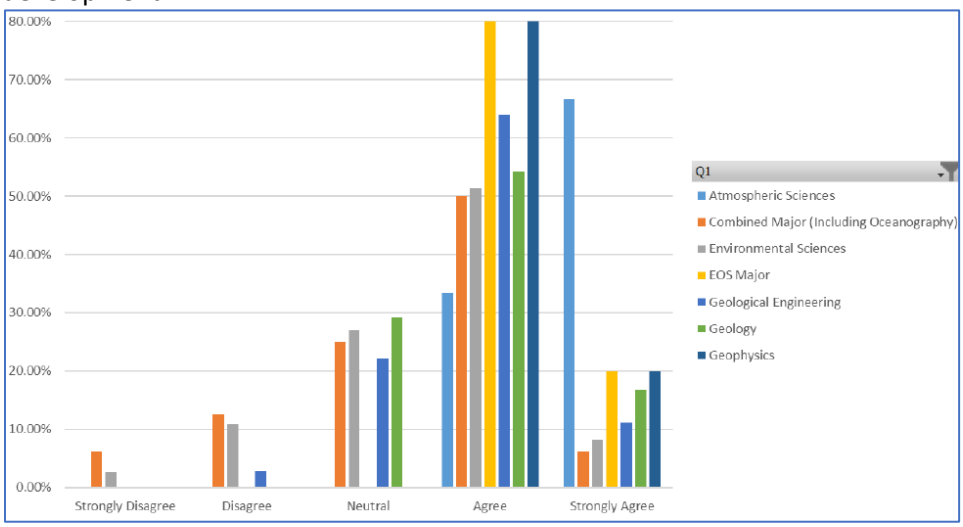
- "**Do you know what career or further study you want to pursue** upon graduation?"
  Other than engineers and ATSC, 25-50% say no.



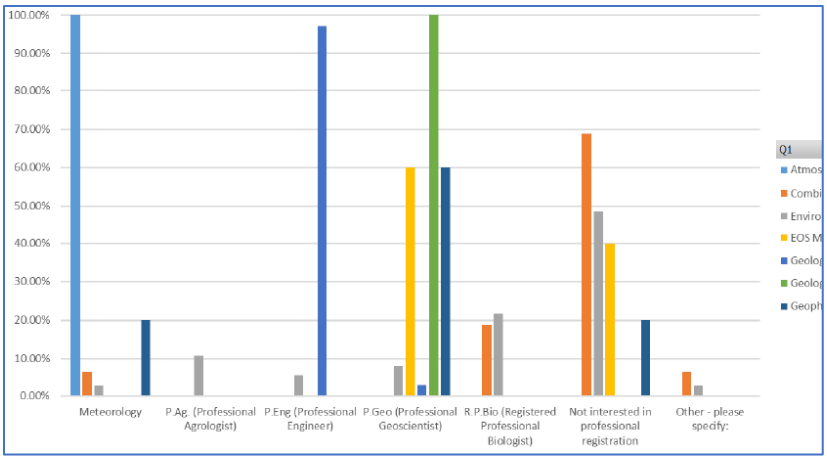
- **Intended careers.** NOTE: 15/85 (18%) say "grad school" or "research" (not counting engineers).



- **Curricular flow:** Courses in my specialization representing a sensible flow of knowledge and skills development

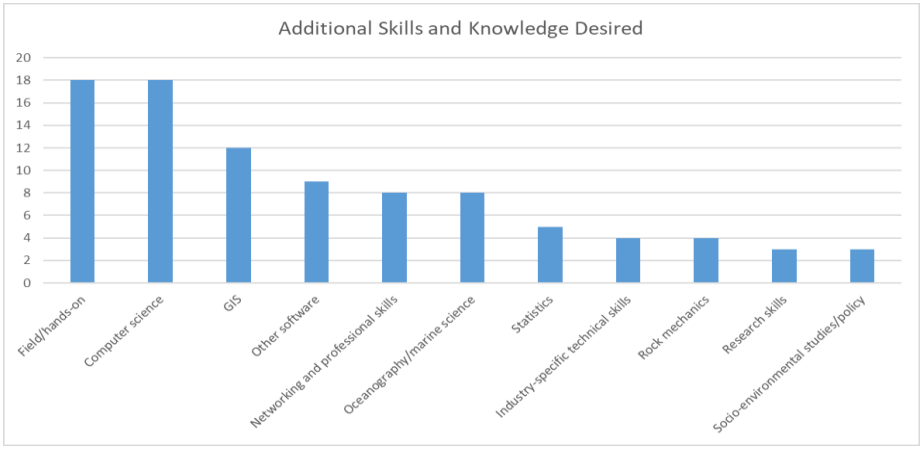


- **Intent to register as a professional:** 80-100% for engineers, geol, geoph, atsc, variable to near zero for others.

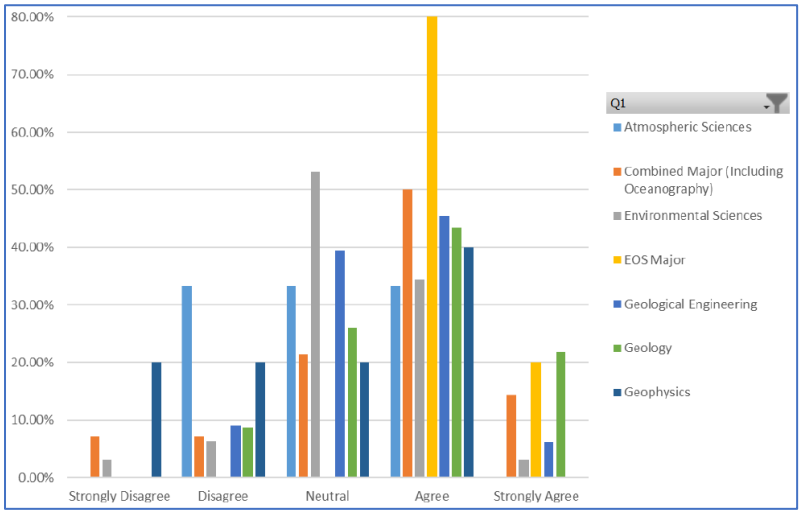


- **Finding electives**:
  Geoph students: neutral (60%) or "agree" (20%) to "I had no difficulty finding electives". **But** - common reasons why combined major, EOS, and geology students struggled to find electives:
  - UBC not offering enough oceanography or marine science courses,
  - Dealing with alternate year courses,
  - lack of connections between courses outside EOAS to EOAS courses or specializations,
  - lack of knowledge about electives, and
  - availability of upper year electives.

- **Additional skills and knowledge desired**. Top four are: Field = CompSci. > GIS > Software. →

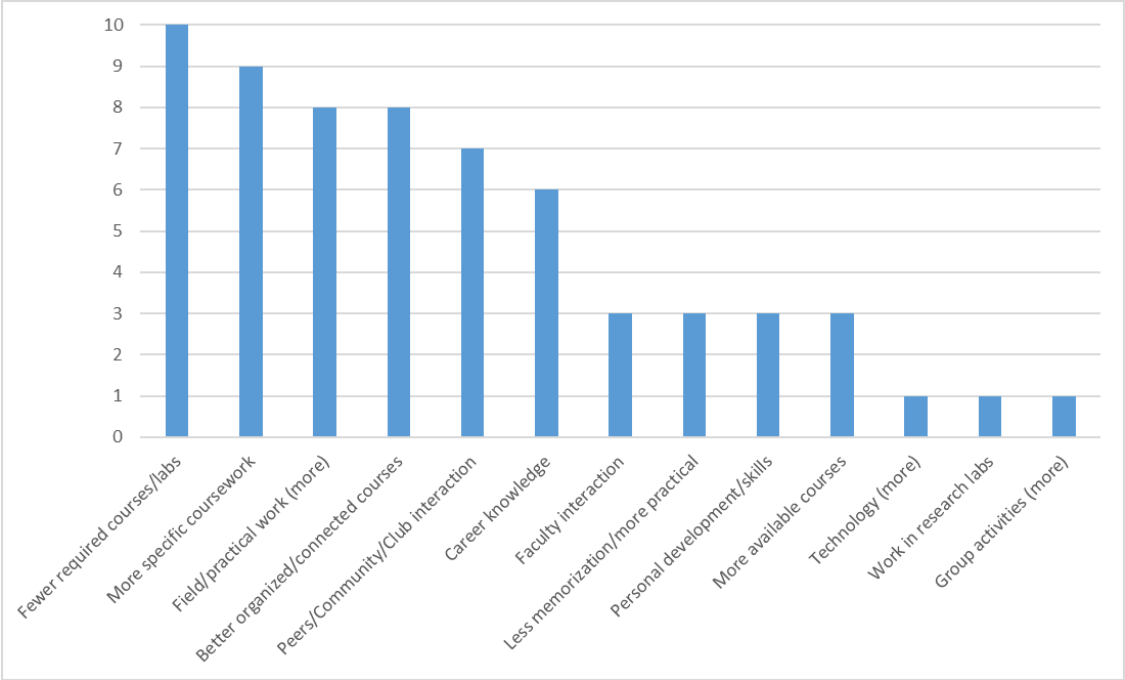


- "**Was it easy to access to EOAS advising**?": Largely "agree" but *disagree or neutral* from 60% of geophysics students. →



- **RE. "Community" within EOAS**
  - Those with club say "great"
  - Those without (eg geoph) say not so much.
  - Students included good suggestions (these have been added to the QES recommendations doc).
  - Most students praised the sense of community in the Department, appreciating their small, interdisciplinary, and unique specializations. All students described being able to ask other students for help and feeling a strong sense of comradery within their cohorts (pg 27).
  - Want more understanding of, and contact with, graduate students.

- "**If I could change one thing about my learning experience in EOAS**, it would be:" (open question)



From focus group discussions

Discussions were wide ranging and very productive. See pages 24-27. Well worth reviewing this content. Students were generally very positive, especially compared to apparent experiences of some students' colleagues in other departments. A few (by no means all) highlights are:

- "*Ability to plan for the future and careers*" was a topic of wide interest and critique, primarily in the survey's open-ended comments. "geophysics and geology students felt much less informed about their career options" (compared to engineering students) (pg 25).
- A geophysics student noted:
    - Although some big companies that hire geophysicists came to campus career fairs, these fairs were not specific to EOAS.
    - Summer internships were available by attending the Round-Up but this is only mineral sector. Otherwise, there isn't much information out there.
    - Strong interest in more exposure to career options, especially through industry talks.
    - However, no base of industry contacts to be able to reach out and organize such sessions. Faculty support is needed to for credibility and responsibility.
- Degree pathways, courses and advising were discussed extensively in both focus groups.
- "*Too many labs – one every day of the week in third year …*". i.e. be CAREFUL of workloads especially with regards to engineering students.
- "*student described an intricate system of prioritization with coursework where more work was put into tasks that seemed like they would have the greatest gains*"
- "*applications and potential weren't shown until fourth year, and they had trouble persisting through some of the courses that seemed less connected to the discipline of choice*."
- Requests for feedback from students is appreciated, but some wonder if it is ever acted upon.
- Suggestion to providing more background review material or lists of basic math and physics knowledge needed to succeed. This is the "prior knowledge" piece of "how learning works".
- Suggestion for a guide or welcome message with information about potential course choices, including EGBC requirements, should be sent out <u>after</u> students get accepted into geology but <u>before</u> they have to register.
- Sense of community – many great ideas. But needs time, energy and commitment.
- geophysics student noted that they didn't really have much group work in their specialization.