

What is a Teaching Academic?

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ABSTRACT

The opportunity to teach the next generation of enthusiastic young people the wonderful world of surveying and spatial information is a privilege. Academics teaching surveying are hard to source for various reasons, but primarily because it is expected that academics have a PhD and a fruitful research trajectory. The ability to teach undergraduate surveying students appears to be a secondary consideration. These students will become members of the professional surveying industry and are required to have certain skills, which often do not lend themselves to a research-focussed academic. This disconnect was becoming more and more pronounced, until now. At the University of New South Wales (UNSW), new education-focussed roles have become an important part of the staff cohort. The requirement for a PhD for new education-focussed academics is being relaxed and replaced by industry experience for teaching-focussed roles. This welcome change in policy opens the way for potential new staff members from an industry background who may want to contemplate a career change or consider a fractional position. But what does all this mean? Can a professional surveyor really transform themselves into a teaching academic and maybe more? What is the job really like? What opportunities are there and what challenges must be faced? This paper hopes to enlighten and possibly attract potential new teaching staff to UNSW for succession planning and refreshment of our academic staff teaching into the Bachelor of Engineering (Surveying) discipline.

KEYWORDS: *Teaching, surveying, education, university.*

1 INTRODUCTION

The term ‘academic’ is used variously as endearing or as a pejorative. Academic achievement could mean educational or scholarly, whilst conversely if an exercise is considered ‘largely academic’, then it would imply that it is impractical or only theoretical. However, to be called an academic simply means a teacher or scholar in a university or institute of higher education. Research is implicit in the title but in recent years has become the most important qualification when seeking new staff. For a practical profession such as surveying, this research focus poses a problem as the fertile ground for research in surveying or geospatial engineering departs further from the basic training that an undergraduate student requires as part of their university surveying degree. Sourcing and employing suitably skilled and qualified new academic staff has therefore become much more difficult (Roberts and Harvey, 2019).

The University of New South Wales (UNSW) is committed to becoming a university that is focussed on fostering both research *and* educational excellence, and this has been the genesis of the new Education Focussed (EF) roles offered to existing staff and now more recently new

staff (UNSW, 2015, 2020). In practical terms, this means that a registered land surveyor with sufficient industry experience and a desire for a change in career could apply to become a teaching academic at UNSW and embark on a fulfilling and satisfying academic career with a focus on teaching surveying. This was not previously possible.

This paper hopes to enlighten and possibly attract potential new teaching staff to UNSW for succession planning and refreshment of our academic staff teaching into the Bachelor of Engineering (Surveying) discipline.

2 WHAT DOES IT MEAN TO BE AN ACADEMIC?

Academic staff (teaching and research) are generally required to conduct teaching, research and service in proportions of 40%, 40% and 20% respectively. Academic promotion from Lecturer to Senior Lecturer, Associate Professor and Professor is based on making a case for excellence in these various tasks. Some academics are research-only and are assessed much more for their research performance. Education-focussed roles have swung the balance more towards teaching excellence and the promotional metrics reflect this change. It should be noted that service is expected and can vary between many tasks from contributions to internal committees, assessing scholarship applications to service on external industry committees such as the Surveying and Mapping Industry Council (SMIC) or tasks that engage the university with the wider community.

A teaching academic would be expected to undertake more teaching than an equivalent teaching/research academic. The BE (Surveying) program contains 12 surveying courses as well as a number of courses in maths, physics, computing and engineering that are compulsory for all engineering students in the School of Civil and Environmental Engineering (CVEN). Courses most likely to suit a new teaching academic with industry experience (and most important for the program) would include 1st year surveying, 2nd year survey computations and Computer-Aided Design (CAD), cadastral surveying and land development which prepares students as candidates for registration, if this is the path they choose.

UNSW now offers 3 x 10-week terms to students, whereby Term 1 spans mid-February to the end of April, Term 2 spans the start of June to mid-August and Term 3 spans mid-September to the end of November.

3 DO I NEED TEACHING QUALIFICATIONS?

Most academics do not have formal teaching qualifications. Unlike TAFE, where a minimum Cert IV in Teaching is required, at university many academics complete their PhD and are let loose on their first class of undergraduates with little teaching preparation. In reality, whilst completing a PhD, the candidate will have prepared numerous conference presentations and probably tutored students, so will have some experience, but nothing formal. That said, at UNSW there are numerous internal courses, resources and support for new and continuing teaching staff. Some academic staff have completed a Diploma in Education, but this is purely personal and not required. For an EF academic, a teaching qualification either internal or external would certainly be encouraged.

Similarly, a professional surveyor may have served as an examiner for Board of Surveying and Spatial Information (BOSSI) candidate surveyors, may prepare presentations for the Kurri Kurri workshop or various Continuing Professional Development (CPD) events (conferences, seminars and webinars) held regularly in NSW and beyond. These all provide good exercises and preparation for a teaching career.

The recent change to EF roles has created an EF community with many opportunities for mentoring, exchange of ideas and support for new, innovative teaching initiatives. It is a very positive development and a great opportunity to learn from other academics from different disciplines about how to design and improve teaching delivery and outcomes.

4 ISN'T IT BORING TEACHING THE SAME MATERIAL EVERY YEAR?

Surveying is a high-technology field. Not only is equipment and software changing rapidly, so too is the underlying policy and representation of new spatial data (e.g. Global Navigation Satellite System – GNSS, Continuously Operating Reference Station – CORS, terrestrial, airborne and handheld laser scanning, Unmanned Aerial Vehicles – UAVs, LandXML, 3D cadastre and modern geodesy). Every year changes need to be made to teaching resources to keep up-to-date with changes in the industry.

Teaching academics should interface with industry and researchers and adapt their courses to suit but conversely challenge industry with new advances that can be shared with industry. Universities are lightning rods for all sorts of experts. Academics are therefore exposed to a lot of new ideas and information on a daily basis. It is far from boring, rather exciting, inspiring and even exhausting.

5 THE ROLE IS TOO INTIMIDATING

Like all roles, you do not start knowing everything. Initially, there is a steep learning curve and thankfully the learning never stops. This keeps the role interesting. Industry experience as a registered surveyor is a great first step from which to build a career as a teaching academic. Undergraduate students certainly value the experience of a teacher who has worked in the industry.

A lack of experience in research can be developed initially through supervising undergraduate Honours projects and with appropriate mentorship from academic colleagues. There are opportunities to undertake part-time Masters or PhD studies as part of the role, which will provide excellent research training. Further study is optional but encouraged. Education-focussed academics can still be active researchers and there are opportunities to convert to a research/teaching academic later in the career if desired.

6 WHAT'S IT LIKE WORKING AT A UNIVERSITY?

Teaching at university can feel seasonal as student terms start and finish and the population of the university fluctuates. You will certainly feel the buzz with a university full of young people eager to learn. The environment is very nice to work in, and the salary and conditions are good. Workplace flexibility is very attractive. It is possible (but not guaranteed) to

structure teaching around some outside commitments (e.g. no teaching after 4 pm on Wednesdays because you coach footy). University superannuation schemes are very generous. The School of Civil and Environmental Engineering is very large and attracts a lot of students. As a consequence, there is a lot of support for the purchase of new equipment and resources all of which is available to academic staff for use in teaching and research projects. There are also many opportunities to work with like-minded academics and engineers on interesting and diverse projects, using your skills in surveying and geospatial engineering.

Access to the library resources (both online and books) and the encouragement to purchase new items for the collection that will enhance teaching and research is also encouraged. UNSW has a large AutoCAD, ESRI and NearMap licence for *all* students (and staff) to use as part of their enrolment. There is budget to purchase new and specialist software that supports teaching and research.

The downside of a large school is large class sizes. Most lectures are now recorded, so students can review them on Moodle (online education platform used at UNSW). However, the challenge is encouraging students to actually attend the lectures. Thankfully student numbers in the surveying cohort are much smaller, so classes are small, although 1st year surveying is likely to become a recommended elective to all 1st year civil engineering students, which will require large class teaching (up to 300 students in a class). There are a lot of support services to provide the best possible teaching, given these larger numbers.

There has been a high demand for graduate surveying students across the profession for more than a decade. Compared to civil engineering, surveying is a niche profession with much smaller numbers, therefore marketing of the career is another important task for an EF academic. There are many activities, such as information days for high school students, where academics prepare hands-on tasks to encourage students to consider studying surveying. The annual UNSW Open Day is an important marketing activity. The Institution of Surveyors NSW (ISNSW) supported Maths in Surveying days, and various similar events supported by the Association of Consulting Surveyors (ACS) should be supported by EF academics who can provide important information to potential new students. Internally at UNSW, there is no shortage of other marketing activities requiring creativity and energy from a teaching academic.

7 CONCLUDING REMARKS

Surveying has been taught for over 50 years at UNSW, and new staff will benefit from the existing resources that have been developed and updated over time. The opportunity to teach bright, enthusiastic young people is a privilege. The teaching academic should embrace the challenge and always seek to use their creativity and experience to develop new, engaging tasks for students. An element of challenge and fun is always appreciated by students and makes for a satisfying career.

With experience, a teaching academic can make a significant and positive contribution to the wider profession and enmesh student teaching and research into a relevant curriculum. Issues such as LandXML uptake, Cadastre 2034, new developments in CORS and Satellite Based Augmentation System (SBAS) and their impacts on surveyors, datum modernisation and professionalism can all be investigated more deeply in partnership with student projects to help deepen the students' knowledge as well as the academic's and possibly contribute to

furthering the development of surveying and mapping in NSW, Australia and beyond. This can be done initially through the supervision of Honours and Masters projects and perhaps later with PhD projects. EF academics can apply for support for conference travel and attendance and are encouraged to present their work to a wider audience with opportunities for networking.

Opportunities to contribute to the profession on professional/industry committees and the various marketing activities enable the teaching academic to keep up with industry developments, which can be reflected in the curriculum taught to students. Succession planning of academic teaching staff at UNSW is a longer-term goal, and hopefully this paper dispels some myths about the role of a teaching academic and might encourage suitable applicants to apply as opportunities arise.

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