

Final report

# STINT Teaching Sabbatical at Arizona State University January - May 2022

**Maria Swanberg**

Senior Lecturer in Translational Neuroscience, Department of Experimental Medical Science,  
Faculty of Medicine, Lund University, Sweden

## Intro

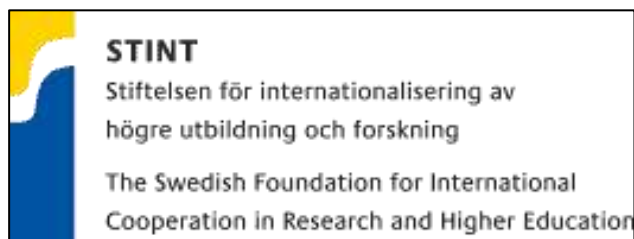
This report is an attempt to summarize the experiences gained from initiating, planning and performing a Teaching Sabbatical at the School of Life Science, Arizona State University, and from temporarily moving a family of five from the small town of Lund to the rapidly expanding Phoenix area.

After five months in Arizona, I returned to Lund University with new perspectives on inclusivity and diversity in academia as well as new insights into how technology and virtual reality (VR) can renew and facilitate both teaching and learning. My family returned to Lund filled with shared memories and appreciation, as well as valuable experiences from being, although privileged, outsiders in a foreign society.

Knowing I will not be able to convey the full experience, I hope to give you a glimpse of our adventure and, maybe, inspiration for your own!



**LUND**  
UNIVERSITY



**ASU** Arizona State  
University

## Preparation and planning

### **Getting the news**

The good news that I was invited to spend a semester at the School of Life Science (SOLS), Arizona State University (ASU), Tempe, was brought to me in December 2019 and was received with joy from the entire family. We all looked forward to this adventure and felt that 8 months until departure was a long wait. Little did we know the wait would be 24 months...

### **Tackling the challenge of international exchange in the pandemic era**

In January 2020, I started planning my teaching activities with the academic contacts at SOLS and discussing practical matters with STINT's local contact person and the International Student and Scholar Center (ISSC). The planning came to an abrupt end right before my intended planning visit in spring 2020, when Covid struck the world and borders closed. Then followed 18 months of hope and despair, repeatedly changed plans and rescheduling, until we, finally, could set my Teaching sabbatical for spring semester 2022.

During the time of rescheduling, most of my ASU contacts changed, including STINT's local contact person, the Director of the Teaching Innovation Center and the Director of Undergraduate Programs at SOLS, but luckily, my intended co-teacher remained. This meant some stability and continuity and we got to know each other well over numerous Zoom calls during almost two years' time.

### **Planning of teaching activities**

My incentive with the Teaching sabbatical was to gain experience from an American university with all that it means in terms of student population, academic environment and societal structures. My host institution was, on their side, interested in implementing more student-active learning methodologies in their campus- and online courses. Together, we soon decided I would co-teach with Professor Brian Smith, a very experienced teacher at SOLS with an open mindset to new pedagogic models. To plan my contribution to the courses, I first aimed to get familiar with the current course content and structure as well as the preceding courses relevant to the target student population. It all came down to teaching Systems and behavioral neuroscience (BIO477), a third-year course for students with a major in Neuroscience, at campus as well as through ASU Online. The same course was thus to be given through two different platforms and the online format raised several challenges for the implementation of student-active learning activities. Luckily, the courses were not completely run in parallel, the on-site course ran January through May and the online course ran March through May. We thus started the planning with focus on the on-site course.

### **Preparing the move of a family of five**

To move a family of five took a lot of preparation in terms of looking for suitable housing and schools, but the main challenge was the visa process, since visa was the key for all further planning. The unintentionally long preparation time at least came with one advantage, we had plenty of time to investigate different housing options and schools. I got the most valuable information and advice from talking to STINT's contact person and with faculty members at SOLS with similar family situations as myself. Since our children attended three different schools, Elementary-, Middle-, and High School, the logistics had to be planned carefully. This made us choose to live in family-friendly Chandler, south of Tempe, close to schools and a 20-minute bus ride to ASU campus.



Left: Our family leaving Lund, December 2021. Right: One part of the family adventure in Arizona, Grand Canyon, March 2022

## Tasks and responsibilities

### **Being a visiting scholar at SOLS spring 2022**

SOLS has a diverse faculty both in terms of subject areas and physical location. When I arrived to SOLS early January 2022, most faculty members had been working from home for almost two years with only virtual meetings and online teaching. This was reflected in half-empty corridors and lack of on-site seminars, meetings etc. The limited in-person interaction was a challenge, as were the face masks that impacted on the ease of communication. I participated in the first on-site Faculty meeting since the pandemic and also attended online seminars such as chalk-talks by applicants to open positions. I also took part in the SOLS Graduate student retreat 2022.

### **Co-teaching BIO477 at Tempe campus**

In the on-site BIO477 course Systems and behavioral neuroscience, my task was to implement student-active learning activities with the aim of increased student engagement and understanding of the course topics. Practically, my co-teacher and I met with the students for 75 minutes two times per week. All lectures were pre-recorded and the time in class was dedicated to tests, discussions and student-active learning activities. I recorded lectures for the course topics on Neurodegenerative disorders and contributed to quizzes and exams, but my main responsibility was to construct and lead the weekly individual readiness assurance tests (iRATs), the following group tests (team RATs) and the following whole-class discussion.

### **Co-teaching BIO477 at ASU online**

The BIO477 course was given for the first time at ASU online and my task was to adapt on-site course content to the online format in collaboration with my co-teacher. I was responsible for the development of active learning activities to this content, corresponding to in-class iRAT/tRAT. The online format brought with it challenges, including being asynchronous in terms of teacher-student and student-student interactions. The team-based activities thus had to be replaced by an individual reflective assignment with teacher feedback. These assignments were named Analytical exercises.



Finally, I was the holder of a Sun Card! My workplace; ISTB1 (Interdisciplinary science and technology building 1) at ASU Tempe campus.

## Activities during the Teaching Sabbatical

### **Participating in SOLS faculty activities -Faculty meeting**

After almost two years of online meetings only, SOLS had an on-site Faculty meeting in April 2022. For several newly recruited faculty members, and for me, this was the first large in-person meeting at ASU. The atmosphere was very open and I got a better picture of the faculty's structure and organization.

A large part of the meeting was dedicated to discussions on strategies to bridge the gap between SOLS' current state and mission, the mission being to "*inspire and transform our life science students*" and to "*provide an innovative learning experience that prepares students to thrive in a dynamic and demanding world*". One of the challenges discussed was "*How do we ensure quality in our SOLS Tempe and ASUO courses as our enrolments increase?*". The current state is as many students with SOLS majors (around 3.500 in fall 2021) at ASU campus and at ASU online. However, while the number of SOLS students at ASU campus is expected to grow with 1-3%, it is expected to grow with 15-25% at ASU online the coming four years.

The challenge of offering the same course and learning opportunities on-site and online is not merely a matter of content, but also that the student populations differ. While the majority of SOLS students come straight from high school, those taking a degree at ASU online often are older, work in parallel with studying and have a more demanding family situation. For teachers, a challenge is that many are not used to teaching online and that a course cannot be taught online with retained quality without revised learning activities. Alignment between on-site and online course curricula is also needed and require support. ASU online has a team of Instructional Design Specialists that assist course managers in planning online courses, and "*Administrative actions*" was rated highest among the faculty at the meeting for helping alleviate challenges in the future.

One part of the meeting was dedicated to welcoming new faculty members, honoring work anniversaries for "old" faculty members and acknowledging awards etc. This is something I bring with me to Lund University, where I think we could improve in the acknowledgement of our peers.

### **Participating in SOLS faculty activities -Faculty recruitment**

The fact that ASU and SOLS are expanding combined with a higher mobility among employees resulted in several ongoing recruitments during my sabbatical at SOLS. The interview process had been adapted to a hybrid format, where the applicant and the recruitment committee were on site and faculty mainly joined online. I listened to a couple of chalk-talks and followed the recruitment process at SOLS and at ASU-Banner Neurodegenerative Research Center (NDRC). I also discussed the recruitment process with international faculty and broadened my understanding of the complexity of every new recruitment, especially to a rapidly growing, but still considered rather remote, area such as Phoenix.

### **Co-teaching BIO477 at Tempe campus**

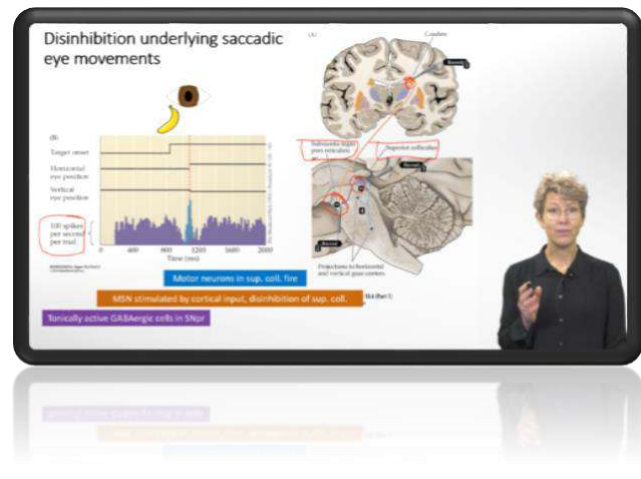
The course BIO477 Systems and behavioral neuroscience covers 3 out of 12 semester credits, corresponding to 7.5 ECTS/hp in Sweden. We had a total of 150 minutes in class divided into 75 minutes two times per week. The students were expected to prepare for class by watching recorded lectures and reading recommended literature. The course was divided into three modules, the first covered higher processing of sensory input such as vision and olfaction, the second covered complex brain function such as learning and language, and the third covered diseases such as neurodegenerative disorders and addiction. In previous years, my co-teacher Brian had used individual quizzes to promote students to keep up with the course content. These quizzes were kept and yielded credits for the final examination. The examination included a poster presentation and three written exams with short essay questions, one for each course module. Thus, three written exams, a poster assignment and quizzes were used for the final grading.

My main task was to implement student-active learning activities in the existing course. At Lund University, I have implemented Team-based learning (TBL) in courses at the Bachelor- and Master programs in Biomedicine, as well as in the first course at the Medical program. The main outline of TBL is self-studies followed by iRAT and tRAT for diagnostics and deepened understanding and an application where the knowledge is applied to solve a problem, design an experiment or other activities. For BIO477, I decided to focus on iRATs/tRATs and the following whole-class discussion.

We decided not to grade the iRATs, i.e. they were not part of the examination but a learning activity. Therefore, the students were not expected to have all the correct answers. Instead, the following tRATs were intended to promote discussion and challenge the students in evaluating arguments and opinions. The enrolled students all had studied for at least two years but had never before experienced TBL-like activities. Therefore, I was positively surprised by their willingness to discuss and question each other's views and conclusions during the tRATs. It was also clear that the groups' results for the tRAT were consistently higher than those of the participating students' iRATs.

At the end of the course, several students pointed out the team and whole-class discussions as contributing to their learning and understanding of the topic. The classroom was described as a "safe space", and I am particularly happy about having been part of that positive atmosphere.

Since we used a "flipped classroom" setup, students were expected to study at home and come to class prepared. One part of the provided study material was lectures covering the topic of the course- A study week normally had around two hours of lectures divided into several 10-20 min video recordings by Brian, me or external teachers. The videos were recorded in a studio setting with green screen and professional technicians and made available to the students via Canvas.



Left: My co-teacher Dr Brian Smith at the recording studio. Right: Example from one of my recorded lectures. The greenscreen setup allowed simultaneous pointing and drawing on slides.

### **Teaching BIO477 at ASU online**

The online version of BIO477 had a very similar, but not identical, syllabus as the on-site course. The poster assignment was excluded and instead of iRATs/tRATs, the students had four analytical exercises that together made up 100 out of 530 points total in the final examination and grading of the course. The course was given during a period of eight weeks (compared to 16 weeks for the on-site course) and the students could adjust the pace of their studies, but had to do assignments and exams in consecutive order. As for the on-site course, there were three written examinations and quizzes related to each topic to base the final grade on.

The teamwork experience from tRATs was not possible to achieve online, since students were not synchronized with regards to time zone and completeness of the course content. The Analytical exercises were thus performed individually, and upon submitting their answers, the students received a general feed-back in the form of examples of correct answers. To evaluate the exercise, I also reviewed the students' answers and gave individual feed-back, but this will be difficult to do large-scale as the online course gets more participants.

### **Using virtual reality in undergraduate teaching -Dreamscape**

ASU is proud to have been ranked No. 1 in innovation for seven years in a row by the U.S. News & World Report, ahead prestigious institutes like Stanford and MIT. One of the innovative strategies is Dreamscape Learn, a collaboration between ASU and the Californian entertainment and technology company Dreamscape Immersive. The aim is to develop an immersive virtual reality (VR)-based curriculum, where students experience and solve problems without the limitation of historic time or space.

*"Technology has caught up with what people used to think about, and we can now build an emotionally driven learning experience to teach really complicated subjects."*

Comment on Dreamscape Learn from ASU president Michael M. Crow

Together with my family, I had the chance try two different Dreamscape Immersive experiences, swimming with whales in "The blue, deep rescue" and petting alien animals in "Alien-zoo". This was fascinating and caused my kids to envy me going to work at ASU each

day. More importantly, I also tried the experimental setting used in an undergraduate Biology course, where students enter VR in the assigned pods at Dreamscape Learn to collect data, leave to analyze the data and plan follow-up measures before returning to the VR setting. Spring 2022 was the first time this was part of a course curriculum, and I look forward to the upcoming evaluation process.



*Top row: Dreamscape at ASU. Bottom left: One of Dreamscape's virtual reality pods used in undergraduate education. Bottom right: Part of the family geared-up for a Dreamscape adventure.*

### **Interacting with ASU-Banner Neurodegenerative Research Center (NDRC)**

The recently formed ASU-Banner Neurodegenerative Research Center (NDRC) is a partnership between Banner Health and ASU and lies close to my field of research. I therefore connected with the Founding Center Director, Professor Jeff Kordower, early during my sabbatical. My interaction with NDRC was mainly through research seminars, and also gave a talk at one of the "Director's Seminar Series". NDRC was in an expansive phase and I also had the chance to follow a couple recruitment processes, which were quite different from those at the Faculty of Medicine at my home university LU.

A result from the interaction and engagement with NDRC is a planned student and scholar exchange with the Wallenberg Neuroscience Center in Lund, as well as facilitated contact and engagement of ASU supervisors for free-moving LU students' project courses.

### **Establishing bilateral exchange through SOLS and ASU Global**

There are currently two exchange programs between ASU and Swedish universities (Linnéus and Örebro) but these are both inactive. In order to investigate the interest for a bilateral exchange between SOLS/ASU and LU, I initiated a discussion with SOLS' Head of Undergraduate Education, Professor Shelley Haydel. This was very positive and was extended to include NDRC's Director and representatives from ASU Global. We are now at the state of setting the conditions of the exchange, and my intention is to return to ASU with representatives from the international office at my home faculty to formalize an agreement. Due to the dramatically different sizes of our student cohorts, the exchange is intended to start with SOLS' undergraduate students with a major in Neuroscience and students at the Bachelor and Master program in Biomedicine at LU. The LU courses offered to SOLS-ASU students are planned to start with summer research (15 ECTS) and courses in Biomedicine (7.5-30 ECTS). LU students in Biomedicine have several possibilities for credit transfer for courses taken abroad, something that facilitates exchange.

### **Participating in SOLS Graduate Student's Retreat**

The SOLS graduate students did not have their annual retreat in 2020 or 2021 due to the pandemic. During this time, several new graduate students started and most new and existing graduate students worked from home a substantial part of their working hours. As for many other students and employees across the world, the lack of on-site social and professional interaction often posed both professional and mental challenges. The 2022 SOLS Graduate Retreat held on May 6<sup>th</sup> therefore focused on graduate students' mental health and prospective careers.

At the Faculty of Medicine, LU, I teach Mental Health First Aid (MHFA) to undergraduate students. MHFA is a structured program with validated effects on mental health and improved readiness to identify and assist individuals with poor mental health. A recent national survey among graduate students in US found a very high prevalence of stress and poor mental health and was presented at the retreat. The discussion among participating graduate students specifically pointed out stress associated to workload including having to combine and balance teaching and research, and stress associated to future career.

I was invited as a member of the panel for *Academic and Non-Academic Careers*. The panel also included a professor in clinical medicine with vast experience from academia, health care, government sector and non-profit organizations and a professor in experimental medicine with long-term experience from innovation and entrepreneurship. Both my co-panelists expressed a highly ambitious and competitive mindset that I myself associate with American working culture. Although very inspiring, they also personalized the scientist's role model being extremely dedicated to work, competitive and determined. Having participated in the preceding discussions on experienced stress among graduate students, not the least regarding prospective career choices, I tried to nuance the picture of having to be a 100% dedicated scientist. I therefore focused on the importance of work-life balance and that periods of professional doubt and reconsideration of careers most likely will occur, and that this doesn't mean you're not fit for the job but merely human. I know this is easier said than done, but I think the less authoritarian relation between faculty and students in Sweden can facilitate identification and, in the best-case scenario, strengthen students' confidence.



## Important lessons

### Inclusion and diversity

One of the most important lessons I learned from ASU was to revise my view on university rankings and success. The motto ***“We are measured not by whom we exclude, but by whom we include and how they succeed”*** to me reflects a view on education and academia as integrated and inseparable parts of society that contrasts to elite institutions’ focus on low admission rates. Sweden’s higher education act (Högskolelagen) states since 2001 that universities and university colleges shall broaden recruitment to increase diversity and promote education in underrepresented groups. Still, 83% of those with a parent holding a doctorate degree but only 23% of those with parents having only pre-high school education start university studies. Most remarkably, this imbalance has remained at the same level for at least 20 years according to a Swedish Higher Education Authority, UKÄ, report in 2022. Although change isn’t easy and involves many partners and levels in society, I think ASU can serve as a good example both when it comes to mindset and results regarding diversity and inclusion.

### Accessibility

An aspect that was new to me as a teacher was the automatic scan of published course material online regarding accessibility. For example, flagging for color blindness accessibility of lecture slides and other visual material seems like an obvious tool, but is something I hadn’t come across at Swedish universities.

### On-site, online and virtual teaching

Since I was teaching the same course on-site and online, I learned a lot about integrating the two, as well as pros and cons with the respective teaching formats. In contrast to my previous experiences of online teaching during the pandemic, teaching at ASU online was not an adaptation to an acute situation but a fully developed infrastructure with professional technical and pedagogical infrastructure such as the recording studio and ASU online instructional designers. Experiencing ASU-Dreamscape was another eye opener on how to integrate new technological tools, in this case virtual reality, in teaching.

## Comparison between the ASU and LU

### Differences in the use of technology and IT in education

Differences in use of technology between Arizona and Sweden were apparent, but worked in both directions. High-tech self-driving cars (Waymo) were frequent in our neighborhood, as were small robots on wheels delivering food at Tempe campus. On the other hand, I found the inevitable use of cash and checks old fashioned. I have used the flipped classroom strategy for teaching both at LU and at ASU. But as mentioned above, at ASU I had access to a professional studio for recording lectures while at LU, I needed to arrange my own recordings (during the pandemic, most of the time from the kitchen table...) with all that it brings in terms of lower quality. My impression is that the development and growth of ASU online, as well as the enforced online teaching during the pandemic, has contributed to better use of technology also in on-site teaching. In my teaching at LU, I’d like to have access to similar recording facilities, something that would improve accessibility through better audiovisual quality and possibility of adding subtitles etc.



Left: Driverless Waymo car in Chandler, Arizona (Cronkite News). Right: Food delivery robot at ASU campus, Tempe (The State Press).

### **Difference in faculty recruitment procedures**

During my stay at ASU, there were several ongoing recruitments of new faculty members at SOLS. As part of the faculty, I was invited to attend candidate talks and chalk talks, something that was new to me. For tenure positions at the Faculty of Medicine at LU, only appointed external reviewers and the Academic Appointment Board (*sv. Lärarförslagsnämnden*) meet and evaluate candidates. I believe that being part of the recruitment process of other faculty members provides valuable experience for one's own career and leads to increased engagement in the department and faculty.

### **Differences in the use of course curricula and programmatic development**

Already in the planning process of my Teaching Sabbatical, I became aware of the difference between course curricula at LU and ASU. At LU, the course curriculum needs to be set before students apply to the course, and changes can only be made after decision in the respective Board of Education. In my teaching at ASU, the course curriculum was finalized just days before the course started, and the learning outcomes could vary between semesters for the same course.

A flexible course curriculum can of course be advantageous for rapid adaptations and course development, but is problematic when it comes to programmatic development. This was also an issue at SOLS, where teachers didn't always know what had been taught in the previous course. In combination with the students' flexibility, enrolled students could have a different combination of previous courses, making tracking of students' progression in terms of knowledge and competencies difficult. At LU, I have worked extensively with aligning courses with the Bachelor and Master programs in Biomedicine with a clear focus on programmatic development. There, I know which students will attend the course, the content and activities they had in prior courses, as well as what is required for them to be prepared for the next course. The larger flexibility in course curricula at ASU compared to LU was also reflected in more flexible examinations. The large differences in the value and flexibility of course curricula and examinations at SOLS compared to the Biomedicine programs at LU are partly due to scale, but also the result of different legislation.

## Recommendations

In all, I highly recommend a STINT Teaching Sabbatical at ASU to future scholars. My top three advice are:

- 1. Prepare well.** This goes for both your teaching assignments and private life such as housing and, if relevant, schools. Talk to several different people, ask if there is faculty with a similar family structure as your own that can give advice. And don't wait long before sending a reminder if you don't get an answer. I had to train being persistent and a bit annoying to get the information I needed.
- 2. Integrate with local faculty.** In my case, co-teaching was a great way to get to know the institution, work environment and local community. Another advantage is that what I contributed to the courses I taught will be implemented also in coming courses through my co-teacher. This increases the impact of my Teaching Sabbatical and was very motivating for me personally.
- 3. Experience the surroundings.** Take the chance to experience American society, culture and nature, from getting to know your colleagues and neighbors to following local media and performing everyday activities to sheer tourism. This is a chance of a lifetime!

## Action plan

In my current role as Program Director for Biomedicine at LU, I have ongoing plans with ASU regarding partnership for student and teacher exchange. The intention is to start this exchange program in spring 2024. In short, Biomedicine students from LU will be offered a full semester at ASU, corresponding to 30 ECTS. From LU, this applies to Biomedicine students at the fourth and fifth semester of the Bachelor program and the second semester at the Master program. From ASU, undergraduate students at SOLS with a major in Neuroscience will be offered to take a summer course at LU comprising full-time engagement in a research lab, corresponding to 15 ECTS.

Teacher exchange is the next priority, and my goal is to not only send students and teachers between continents, but to engage classmates and respective teachers to also achieve "*Internationalization at home*". My suggestion is to design shared learning activities such as workshops and TBL-application exercises where students from LU and ASU campuses jointly work on a case or assignment. Exchange students and visiting teachers can then serve as ambassadors and "bridges" between the two student cohorts. Story to be continued!

## Acknowledgements

First of all, I would like to thank STINT for giving me the opportunity to perform this Teaching Sabbatical, LU for nominating me, and ASU for accepting me as a visiting scholar! Numerous people have been crucial for the realization of my sabbatical, I especially would like to thank Brian Smith for your generosity, open mindset and positive attitude, co-teaching with you was a true pleasure and I have learned so much from you!

Shelley Haydel, for hosting me at SOLS and for all help with integrating with the faculty.

Karen Engler, for help on everything from finally getting the Visa to sharing advice on housing and schools. Last but not least, thank you to my wonderful Oskar, Erik, Sara and Nils for being so enthusiastic throughout this journey and sharing our Arizona adventure!