Teaching Sabbatical at Williams College 2022

By Anders Hellman, Chalmers University of Technology

Introduction

Williams College is a liberal arts college in Williamstown, located in the Berkshires region of western Massachusetts, USA. Williams College is among the country's oldest, established in 1793, and most prestigious liberal arts schools. It has been ranked #1 among the National Liberal Arts Colleges by *U.S. News & World Report* since 2004[1]. The school was originally a men's college, and the college first admitted women in 1970. Today Williams is a forward-looking college with respect to diversity, equality, and inclusion.

The number of students is about 2,000, and the tuition, fee, room, and board are about $60,000/year. The acceptance rate is about 15%. The college practice need-blind admission, i.e., students are admitted without regard to their ability to pay. As a result, more than half of all Williams students receive some form of financial aid from the college. Furthermore, on top of that, the college actively seeks high-achieving, low-income students in the admission process. As a consequence, the students are exceptional and highly motivated. This year Williams College announced that beginning next semester, its student financial aid packages would consist entirely of grants, and that this would eliminate loans, required campus employment, and summer jobs from its financial support of students.

Being a liberal arts college, Williams provides a broad knowledge of arts, humanities, social sciences, and natural sciences, fostering students to think critically from many viewpoints. In other words, the focus is on cultivating and disciplining the intellect rather than providing a professional curriculum. Hence, Williams does not have any mandatory courses but has rigorous requirements for students in the arts and humanities, social sciences, science, and mathematics. In addition, the school places particular emphasis on intensive writing, reasoning, and diversity. The students are required to take courses from different disciplines, and given that the normal pace includes four courses per semester, the workload is heavy. During their junior year (3rd year), the students should choose a subject to be major in. Many students have double majors and, on exception, even more. The academic year follows a 4–1–4 schedule of two four-course semesters plus a one-course "winter study" term in January. That means the year is shorter than in most other liberal art colleges, which increases the workload even more. To compensate for the workload, Williams College has a lot of dedicated resources to help students, e.g., writing and math skills and health issues. There are also more resources at the course and department level than in standard Swedish universities; for instance, the professors also have a lot of open office hours, where the students can get extra help in the different courses.

As for the faculty, Williams also offers a lot of resources to allow the faculty to focus on their teaching duties. Williams has an extreme Student Faculty Ratio of 6:1, and there is ample opportunity to interact between the students and professors. Given the amount of lectures, labs, and office hours, the faculty has little time to conduct research. This is in mark

[1] https://www.usnews.com/best-colleges/williams-college-2229/applying

difference compared to most Swedish universities where research is the primary evaluation in the different carrier steps. But then again, pedagogy and being a good teacher are seen as extremely important at Williams.

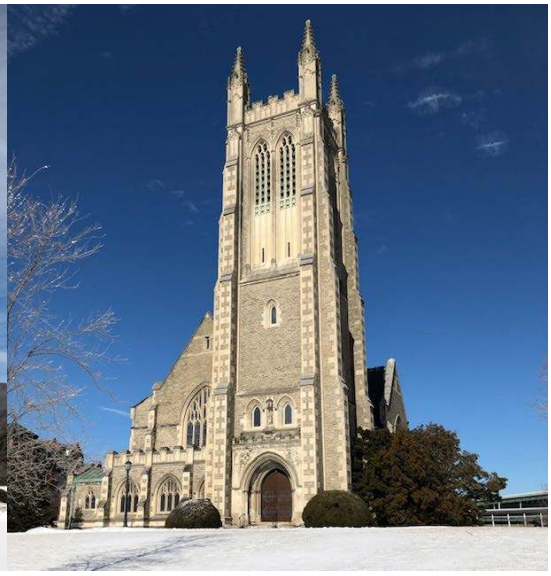
Preparation and Planning

The initial plan was to attend Williams during the autumn of 2021, and there was some exchange of email and zoom meetings with the administration and faculty of Williams under the period of Mars-to-May. We discussed what kind of course I would be interested in and how to match with the already existing curriculum. We also discussed the different housing options, and we initiated the visa application for the whole family. Williams administration and faculty were extremely helpful, and we felt fully supported in the process. As we planned to bring both our daughters (age 15 and 19 at that time), we also needed to make plans with the schools, especially since our youngest was supposed to start 9-grade, and the grades would be necessary when applying for high school. We contacted the school here in Sweden directly, and the administration and teachers were extremely helpful. We were also in connect with the school in Williamstown, Mt. Greylock Regional School, and via emails and zoom, we were able to set a schedule for our youngest. Our oldest daughter planned to have time off before going to university; however, just in case, she still applied and was accepted to Uppsala (which was lucky given the later development, see below). I also made arrangements at work, e.g., to find a substitute for my courses and my role as coordinator of the master's program of physics, and my wife, being a teacher, also made similar arrangements. At this stage, we were very optimistic and felt very positive about the overall plan.

However, as in so many other cases, Covid played a significant role. Although we had a booked appointment with the US embassy in May, the embassy canceled the time with short notice. Despite several attempts, we were not able to secure a slot in time for our planned travel. Hence, we needed to postpone the autumn trip. Discussing the issue within the family we decided to try in the spring of 2022 instead. This resulted in a number of complications and problems that we needed to handle. First, we connected Williams, and thankfully, they were able to handle any obligations/promises made for the autumn (although I later gave a lecture in solid state physics at Williams during the autumn via zoom).

Further, we could postpone our rental apartment and the registration of our youngest to the Mt. Greylock. Secondly, we contacted the school here in Sweden, and we were able to make arrangements that allowed for our youngest to still get valid grades by following an individual study plan during the autumn (double pace), even if we were away during the spring term. It should be noted that this was possible thanks to helpful teachers and administration at our local school. If anything, having direct contact with the local school rather than the municipal is a piece of good advice for future STINT fellows. Thirdly, our oldest was lucky to be able to postpone her education by half a year. Finally, I discussed the new development with my employer. Thankfully, Chalmers was able to be very flexible with respect to my teaching, research, and administrative obligations, and we could put forth new plans for the spring term instead. In a similar manner, my wife was able to make adjustments so we could do the sabbatical despite the significant change.

During the autumn, the US embassy allowed us to send in our application via mail, and we finally got our Visa. Scorned by the experience, I suggested that I would not introduce a new course at Williams, and instead, we decided that I would co-teach some of the already existing courses. This is to mitigate if, for some reason, we would not be able to join the spring term. With all of this in the plan, we finally arrived at a snow-heavy Williamstown at the end of January.

Tasks and Responsibilities

My teaching duties were co-teaching a course in Modern Physics, covering relativity, quantum mechanics, and statistical physics. The number of students was about 25, some that will have physics as their major but also a number (~10) that were pre-meds or had completely different majors. The fact that the students came with quite different backgrounds in math and physics was sometimes an issue, especially on my part, where I could sometimes introduce the topic from a too mathematical point and thereby miss some students. This was something that, thankfully, my co-teacher professor Catherine Kealhofer could make me aware of and help me to find a better approach. The lectures were also much shorter (50 min), which meant one needed to focus on the topic. The students were very good at asking questions and were well prepared to all lectures. Besides lectures (2-3 times a week), there were also weekly lab sessions and problem sets. The labs were hands-on setups where the students (2-3 students per group) performed some of the experimental measurements of modern physics, e.g., the photoelectric effect, whereas the problem sets covered the different topics of the course in quite some depth. In addition, there was one midterm exam and one final exam. In mark contrast to the exams in Sweden, the exams were not under supervision; instead, the students were trusted to follow an honor code. Mistreatment of the honor code would be handled by the Williams administration; however, this was not an occurring thing. Like most Williams students, they were very ambitious, took full advantage of open office hours, and were keen on delivering on all assignments.

I also sat in on a course in Thermodynamics and statistical physics, a course for ten major physics students. The layout of the course followed very much the Modern physics course, i.e. 2-3 lectures a 50 min, lab session and problem sets. The students were very active, and there was much discussion during the lectures. Here the level of math was also higher.

As a final teaching duty, I had one student doing an independent study with one student. As the liberal art system allows the students to pick various topics and subjects, sometimes, students get conflicts in their schedules. In this case, a student majoring in physics had a conflict with the schedule of Thermodynamics and statistical physics, a course required in his major. This was quite a unique experience, and I am delighted to have had the opportunity to do this. We met for 2-3 hours per week, and the student was responsible for giving a lecture on the particular topic for the week, and then we would solve problems together on the blackboard (each office had a black/white board). Given our interest, we could cover some parts in more detail while having a more overview of some parts. As I was sitting in on the course Thermodynamics and statistical physics, I was comfortable that we were following the curriculum required by Williams. We were not restricted to the office, and when the weather was nice, we could walk around the campus and discuss various topics. The teaching was more in the form of a Ph.D. course, and the teacher-student relation was more of supervisor and Ph.D. student, even though the subject was course material.

Activities During the teaching sabbatical

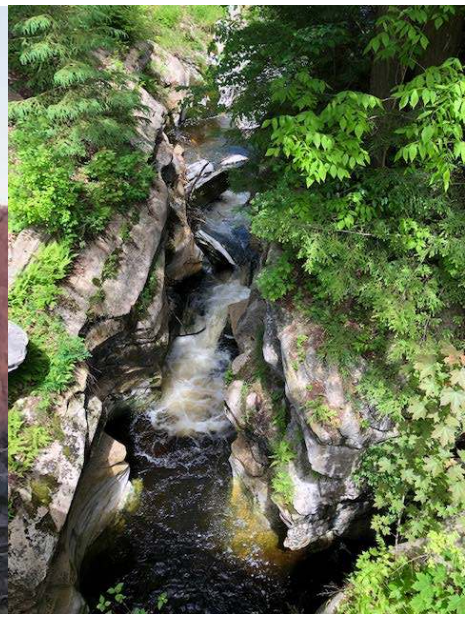
At Williams, new faculty are allowed to attend First3, an organized lunch meeting twice a week. As the name suggests, the new faculty can participate during their first three years as tenure-track faculty; however, the invitations also extend to visiting faulty. The organizing body consists of newly tenured faculty. During the meetings, much of the politics and governing of the college are discussed. For instance, as Williams is a faculty-governed college, there are several different committees that the faculty is involved in. For me, as a visitor, it was exciting to be able to get an overview of how these committees function. In addition, we discussed pedagogy, teaching, and grading on several occasions and the expectations of the tenure-track faculty. It is easy to recognize that the First3 allows the new faculty to learn the Williams spirit quickly and make connections over all departments. This is, in my view, highly valuable and is something that would benefit other universities, including my home university.

Besides teaching, Williamtown and the college offer many exciting things to do. There are many music activities, for instance, almost every week there was a concert in Chapin Hall, where world-leading musicians, e.g., Sara Buechner and Berkshire Symphony, played. There are also competitions where the Williams students compete for different scholarships. For more information, please see https://music.williams.edu/ensembles/berkshire-symphony/. There were also some music festivals in the campus area that both students and faculty would enjoy.

There are many sports events where the Ephs (Williams team nickname) competed against other colleges. The sports are season based, and during the spring, baseball/softball, tennis,

and lacrosse were active. There were also swimming and wrestling; however, due to covid, these were not public events.

For the more outdoor person, Williamstown and the surroundings offer many trails. There is an outdoor club that is very active and can assist any first-timers and can also rent out some equipment. We visited the marble bridge and Mt. Greylock, and even sat foot on the Appalachia trail. All highly recommended. Williamstown is also a nice place to walk around and look at all the official buildings and all the nice New England houses.



As a liberal arts college, one can enjoy various open lectures. Many were announced in the daily emails from the administration. Being situated in Massachusetts, many of the speakers were from the many prestigious institutes in the area. As the topics vary, there should be some for everyone. I particularly enjoyed the philosophical, math, and physics seminars.

In the spring, the senior students finalize their thesis work, and at Williams, all theses require a second reader, and since this duty was distributed among the faculty, I got the pleasure of functioning as a second reader to a very ambitious student. The duty is, in short, just to make sure that the thesis is clear; the primary supervisor checks the technical details. Although the topic was not within my area of expertise, I enjoyed it very much, and the student and I had long discussions about the view of physics and education at Williams. In addition, all physics majors (ca ten persons) later presented their studies to the whole faculty. In this way, the department is very aware of the topics covered.

Another benefit of attending the spring term is graduation. After the end of the spring term, the faculty and senior students dress up for graduation. During the event, there are speeches and honoring awards, and finally, the diploma is handed out individually by the college president Maud Mandel. Afterward, the faculty forms a line and applause all the graduates as they walk by. Finally, there is food and celebration. Interestingly, the day after, most students have already left the campus. After graduation, Williams had a lot of reunions

with older graduates, and for almost two weeks, there were constant celebrations of various classes.

Important lessons

Rather than gained, my understanding of teaching has been reinforced. The most important role of the teacher is to present the material in such a way that the students interact with the material (it is the students that learn rather than the teachers that teach). Since the student body is much more diverse (in their preknowledge), the professors at Williams spend much more time presenting the material in different ways, and there are a lot of open office hours where the students can interact with the teachers in a one-to-one situation. This is an ideal teaching situation, which can be supported at Williams with a ratio between students and professors of 6:1.

One important (and humbling) lesson is that when the students come with different questions on the topic at hand, it is easy to fall back on my own view/experience without taking the time to try to understand the student's perspective. To really take the time to start from the student's question and orient towards the answer. It happens (often) that one does not reach the solution, but it shows the students the process of tackling problems. To me personally, this is scary and something I will work hard to improve.

Another lesson is that there are many different expectations at another university, and it takes time to figure everything out. Thankfully, I had much help from the faculty and administration.

Comparison between the host and the home institutions (in Sweden)

Even when the students have very different backgrounds when entering a course at Williams, the students are very driven to learn the subject. However, due to the difference, the professors need to adjust the material depending on the composition of the student

body each year. Although this is true here in Sweden, the setup with well-defined programs makes the student body more homogenous each year.

The teachers at Williams have a much clearer goal with their teaching compared to my home university. This is perhaps not surprising given that the way to merit yourself in Sweden is very much through research (and your ability to attract funding). Hence, the faculty at Williams discuss the department's courses and staffing in much more detail, and there is also a lot of support (technicians and IT) that helps the teachers. There is also an outspoken aim to support as much of the material with actual experimental observations, either by the students or as demonstrations. The faculty is invested in the junior faculty, and visiting the classes of each other and discussing the material is expected (it is also a part of the evaluation of the tenure track staff). This is an excellent way to assist the junior faculty and educate them in the spirit of Williams.

Interestingly much of the examination rested on the students following William's honor code (misconducts happen rarely and are handled via the administration). Consequently, the examens were not supervised, and the students could do the exam at different times and in the privity of their room. Further, the exams are not anonymous, and the teachers know each student. This is in mark contrast to how the exams are done at my home university.

The physics at Williams has a course catalog that focuses on the backbone of physics, classical mechanics, electrodynamics, quantum mechanics, etc. Students who major in physics should have the core competence to join the grad school of prestigious universities, such as Harvard, MIT, and Stanford. However, some of the students who major in physics enter the financial market where their competence is of high value.

Recommendations

Williams offers plenty of opportunities to develop; however, it is good to have some idea of what one wants to do. Otherwise, it is easy to be overwhelmed. The faculty and administration are very helpful so take every possibility to ask. For instance, our oldest daughter could attend Williams as a matriculated student (i.e., without the need to pay the intuition fee, which was something we did not plan before talking with the administration). One thing to remember is that Williams is in a rural area, and if one wants to travel to, e.g., Boston or New York, it is very nice to have a car. Although expensive, access to a car allowed us to enjoy the whole of New England.

Action plan: Topics to address and, if possible, introduce in Sweden

Thankfully, the courses I am responsible for at my home university are very connected to the courses I taught at Williams. Hence, I can use all the notes and lectures in a straightforward way. As I could spend much more time planning the material at Williams, I hope there is a notable increase in the quality of the course material here at home. I also hope to keep investing the efforts in my future teaching.

As coordinator for the master's programme in physics, I hope to implement/support a closer connection between the students and the faculty at the master's level. If we can achieve some of the familiarity feeling of Williams, I believe much is gained. Williams use of First3 to introduce the new faculty was very impressive and was a tool for making the new faculty feel welcome. If this can be implemented at my home university, something similar can be achieved.

If there is a possibility for a shift in the Swedish system to evaluate teaching more on the merits of the faculty, I believe we can attract/keep a more diverse faculty, and this is something I hope to work for in the years to come.

I hope to foster my contacts with Williams, particularly the physics faculty. There are already some outspoken research topics that we will continue to collaborate on, and I hope to be able to visit Williams at later occasions (perhaps to do guest lectures).

Summary and Conclusions

To give a summary is difficult. The experience was very intense and there are so many impressions to process. To be given the opportunity to do a sabbatical via STINT has been a real honor, and I wish the next person that goes to Williams all the best.