

Internship report about three-month RISE Research Internship in Summer 2021, sponsored by the DAAD and Studienstiftung des deutschen Volkes.

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1. Preparation

To get more experience in research-based environments I explored different options online and found the DAAD rise program. As I have some lab experience from Germany I decided to apply. The DAAD RISE program is a summer internship program for undergraduate students from Germany in the fields of biology, chemistry, physics, earth sciences, engineering, and computer science. It is funded by the German Federal Ministry of Education and Research. When applying the students can select three projects they'd like to join. I selected one project in Rhode Island. The application included a CV, a letter of intent, a Transcript of records, a list of courses relevant to the project, an English certificate (DAAD Sprachzeugnis is accepted), and a letter of recommendation from a professor. After handing in all the paperwork you get a confirmation that the application is received and then wait for the decisions to be made.

On March 10th I got the confirmation that my application was successfully matched with an internship provider, in this case, the University of Rhode Island. After setting the dates for the internship, the application for a visa was next. At this time a covid related presidential proclamation was in place, which disqualified me from applying and receiving a visa as an intern. The proclamation was set to run out on April 1st, so it was a waiting game till then. Once applications for interns at the American embassy were reopened, I had to get all the paperwork from the international office at URI, my supervising professor Prof. Lee and my home institution in Germany. After getting the DS 2019 document from the international Office at Uri I was able to fill out the DS160 form on the U.S. embassy website. After paying the SEVIS fee I was able to apply for a visa interview. Due to COVID, the first available appointment was in September, with my preferred dates being May to August. However, I was able to apply for emergency consideration and received an appointment on May 15th.

I was put in contact with the IEP program at URI very early in the process and was able to secure housing at the IEP facility.

Arrival

After my successful interview at the U.S. embassy, I had to get two COVID tests done and received my passport with my visa the day before I flew to Boston. From there I took a train to Kingston and then ubered to the IEP house on campus. From there I was quarantined at the IEP house for 7 days. While in quarantine I managed to get the paperwork for my campus ID and email account. After finishing my quarantine, I took a trip to Providence with another IEP student.

2. Internship

After that, the real internship started with mostly research in the first weeks. I mainly read and summarized reports familiarized myself with the topics of Superpave asphalt design and took part in an online class about sustainable pavement design.

The main project of this project was the rehabilitation of Upper College Road. As seen below it functions as one of the main roads of campus, spanning from the south end to the north end of campus. The condition of Upper College Road was not good, with complaints rising and safety starting to suffer, the road was to be rehabilitated during the summer. For that, a construction company was hired, which plans on repaving the top two inches of asphalt.

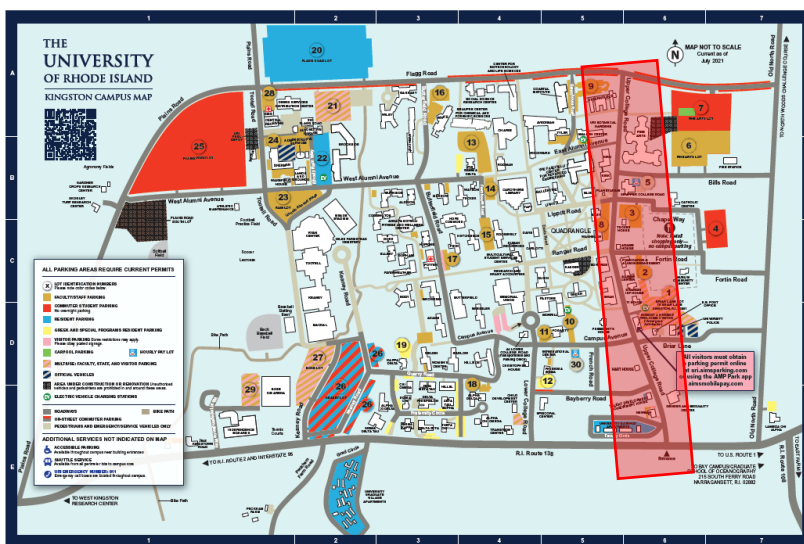


Figure 1: Campus Map, Upper College Road marked in red

Figure 2: Damage on Upper College Road

The asphalt was to be of class 9.5 HMA (hot mix asphalt), which is typically used for surfaces. Each class of HMA has certain mix specifications that are set by the Rhode Island Department of Transportation (RIDOT). In general, asphalt is made up of two components, aggregate, and

binder (bitumen). The procedure followed during this internship is called Superpave volumetric design for hot-mix asphalt (R 35-04) from AASHTO.

The Superpave method consist of 6 basic steps:

1. Aggregate selection
2. Asphalt binder selection
3. Sample preparation
4. Density and voids calculation
5. Optimum asphalt binder content selection
6. Moisture susceptibility evaluation



Figure 4: Vacuum Pump and Mechanical Agitator



Figure 5: Specimen and loose sample

3. Free time

While Rhode Island is the smallest U.S. state, it still has a lot of fun activities. TheRIPTA Bus has pretty good connections, making trips even without a car manageable. The Amtrak takes you to Boston within an hour and New York City within three. Trips to Washington and Philadelphia can also be made by train. I visited Providence, Newport, Boston, New York, Westerly and lots of beaches. Rhode Island is known to be the Beach State and lives up to that.

The beaches are very pretty. During summer they charge a fee between 8:30 am and 5 pm, but I used to go at 7:30 am without any problems.

The cost of living is relatively high compared to Germany. Living at the IEP house meant also eating there. They provided breakfast, lunch and dinner during the week and leftovers on the weekend. If someone comes just for the summer, they will sometimes have the option to opt out from the meal plan, which I would recommend. The food is ok but not worth the 27,50\$ per day.

I personally loved staying at the IEP house because I met great people, party from the U.S. but also some international students. We would have lots of movie nights or go out in Newport, Providence or Narragansett.