

Studying Abroad in Computer Science

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This document is intended for Computer Science and Computer Engineering students who intend to study abroad and take CS classes while doing so. Its goal is to outline policies and provide advice related to transferring credit for CS classes taken abroad as NU CS credit.

If you have additional questions, please reach out to the CS Study Abroad Advisors, currently Professor Ghena, at: study-abroad@cs.northwestern.edu

1 Expectations

NU CS credit for classes taken abroad is not guaranteed.

Different institutions emphasize different aspects of computer science in their curricula, and many have different standards for their courses. You will receive CS credit only for classes that:

1. we consider to be as rigorous and thorough as our own courses, and
2. emphasize the aspects of each subject that our faculty consider important in our own courses (*e.g.*, implementation for systems courses, proofs for theory courses, etc.).

You are welcome to take CS classes abroad that do not satisfy the above conditions, but you will not receive computer science credit for them when you return to Northwestern.

As a corollary of the above, we recommend against making graduation plans that rely on getting significant—say, 3 or more—CS credits abroad.

We instead recommend that you take a mix of theme/distribution classes and at most one or two CS classes. Taking all theme/distribution classes while abroad is fine.

2 Timeline

The following timeline applies to students interested in studying abroad in Summer 2023, Fall 2023, or for the whole 2023-2024 academic year. (For students interested in the less common options of studying abroad in Winter 2024 or Spring 2024, please get in touch.)

Fall 2022: Think about where you would like to study, start thinking about the classes you would want to take.

January 13th 2023, 5pm: Internal CS Deadline: If you would like to have classes you take abroad count for CS credit, submit the list of classes you are hoping to take to the study abroad advisors. Details below.

Classes submitted after this deadline will not count for CS credit.

Late January 2023: The CS study abroad advisors, in consultation with course coordinators, approve or reject the courses on your list. We will work with you during this process if need be.

Now is also a good time to familiarize yourself with your school's study abroad process:

www.northwestern.edu/abroad/study-abroad/academic-planning/major-specific/mccormick.html
www.northwestern.edu/abroad/study-abroad/academic-planning/major-specific/weinberg.html

February 10th 2023: NU Study Abroad Deadline: Submit your application via the NU Global Learning Office web site:

www.northwestern.edu/abroad/study-abroad/apply

3 Transfer Credit Approval Process

If you would like to have classes you take abroad count for CS credit, you will need to submit the list of classes you are planning to take to:

study-abroad@cs.northwestern.edu

before the internal CS deadline. The list should include the exact course names and numbers.

To help you get started, we keep a list of classes at abroad institutions which our students have requested transfer credit for in the past:

<https://cs-nu.github.io/nu-cs-study-abroad/>

This table lists, for each class, whether the class was approved for transfer credit, and if so what it transfers as. Any class from that list that has been approved in the past is likely to be approved again for you (unless there were significant changes to it). On the other hand, classes that have been denied in the past will be denied again and will not be evaluated again.

You are obviously not limited to taking classes from this list, though. For any class you wish to take which is not on the list, you will need to submit documentation detailing the contents of the class. The documentation differs from class to class, but includes things like:

- Detailed syllabus with a list of topics
- Textbook
- Sample assignments

The purpose of this documentation is to allow us and our colleagues to evaluate how substantial, up to date, rigorous, etc. the class is. Hence the need for detailed information about the class.

To keep the approval process manageable for us and our colleagues, we ask that you limit yourself to listing no more than 6 *new* (*i.e.*, not from the aforementioned list) classes total, regardless of the number of institutions you plan to apply to.

Any courses that you are not planning to use for CS credit do not need to be approved by the CS study abroad advisors. If you are not planning to take any CS credit while abroad, you can jump straight to the NU Global Learning Office application.

Along the way, you will also need to fill out the transfer credit form from your school, and there may be some school-specific processes you need to follow as well. Please do familiarize yourself with these processes. If at any point you need a signature from the department chair and/or the director of undergraduate studies, we (the study abroad advisors) can provide that.

4 Guidelines for Transferring CS Credit

- If a course is equivalent to a course we teach, and the course coordinator signs off on it, it transfers as our equivalent course.

For example, an intro databases course with a significant implementation component (B trees, query optimization, transactions, etc.) and which Prof. Rogers approves, would transfer as 339 and count as a systems breadth class.

- If a course satisfies our criteria, but is not equivalent to any course we teach, it transfers as Comp Sci 3XX. These courses may count as technical electives, but do not count towards any breadth areas.

For example, a sufficiently rigorous formal methods class (which, as of Fall 2021, Northwestern does not offer) would count as Comp Sci 3XX.

Avoid courses that:

- are really IT courses: *e.g.*, how to configure a CISCO router, how to be a Linux sysadmin, etc.;
- are really about some narrow and/or proprietary API: *e.g.*, how to use some JavaScript API;
- are focused on teaching you to pass a technical certification exam: *e.g.*, how to be a certified Amazon AWS Specialist;

- are about using software rather than writing it: *e.g.*, how to use PowerPoint, Photoshop, audio composition software, video editing software, or a game course that's largely about how to use the Unity editor;
- have a substantial component that would be considered 200-level CS: *e.g.*, a data mining course that starts off by teaching students basic Python or R; or
- are purely online, with very rare exceptions.

5 Frequently Asked Questions

When is the best time in my degree to study abroad?

If you are intending to take CS courses abroad, we recommend you complete our intro sequence (111, 150, 211, 212, 213, 214) before going abroad. That will open up a wide variety of courses at most institutions, and give you the most courses to choose from while abroad.

We also recommend against going abroad your senior year if you have a lot of degree requirements left to fulfill. Trying to cram all of them into your last two quarters at Northwestern after you come back is risky. This is especially true for breadth requirements, which may be difficult to satisfy abroad.

What are the best kinds of CS classes to take abroad?

Based on our observations, theory and human-computer interaction (HCI) classes tend to be fairly uniform worldwide. So sufficiently rigorous classes in these areas are likely to be close to our own, which means they are more likely to be worth NU CS credit.

In contrast, there are wide variations in systems and AI classes across the globe. Different institutions teach systems/AI very differently, and we do not give NU CS credit for classes that differ too drastically from our own.

What are the best places to study CS abroad?

We are happy to advise you in person based on your areas of interest and preferred destinations.

Do these policies and guidelines also apply to Weinberg students?

Yes. These apply to all students seeking CS credit, regardless of school and program.

I'm applying to a program with an early deadline. What do I need to do?

If you're applying to a program with an early deadline, please get in touch as soon as you can. You may need to send us course information earlier than normal to get transfer credit approvals on time.

6 Further Information

The NU Global Learning Office web site has tons of useful information:
www.northwestern.edu/abroad/study-abroad/get-started

For any questions, please email: study-abroad@cs.northwestern.edu

7 Acknowledgments

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