

Cooperation Scholars Program (CSP) Student Contract

The following document is an outline and written agreement between the [Cooperation Science Network](#) (CSN), its undergraduate division - the Cooperation Scholars Program, and the students who have been rigorously selected to become a part of it. Below we highlight the intended goals of the program, describe how to be a successful member of this program, and outline the expectations of participating students.

Organization: The main introductory stream of the CSP is a seminar-style meeting for reading and discussing papers about cooperation across systems. This bi-weekly seminar will typically be led by Dr. Aktipis. This serves students at all levels and prepares them for undertaking research projects in future semesters in the program. Research projects will be project and team-based, with groups of 4-6 students working collaboratively on a research project from study design to data collection, analysis, and manuscript writing. Advanced undergraduate students will be offered the opportunity to lead these research projects, therefore enabling them to gain leadership experience. Each group will have a mentor who is a graduate student, post-doctoral fellow, mentoring professional, or Dr. Aktipis.

The CSP will also offer career and professional development opportunities, by providing bi-weekly seminars for students to learn about topics including research basics, how to write for publication, graduate school strategy and applications, time management, personal branding, networking (LinkedIn), cultural intelligence, mindfulness, and more.

Contact Information: Cristina Baciú: cbaciu@asu.edu

Values & how to be successful in this group:

Collaboration: we deeply value collaboration and communication in our research group. Come to our meetings ready to contribute and engage in conversations. And if something comes up, do let us know - we're here to support you and help you thrive.

Communication: all communication in this research group will take place through Slack and email. We will respond to your questions timely, and we expect you to do the same if possible (within business hours) within 24-48 hours.

Community: we love working collaboratively and in teams. The Cooperation Scholars Program fosters team and project-based opportunities, and therefore you can expect to operate within groups. Our goal is to build a community of scholars, where you serve as each other's resources. Our interactions will be based on encouragement, feedback, and will result in us all learning and growing together.

Working 1:1 with Cristina: if you'd like to work 1:1 with Cristina (examples of work include but are not limited to exploring your strengths and weaknesses, developing your goals, graduate school strategy and applications, CV/Resume/Personal statement development, personal branding, networking, etc.), don't hesitate to reach out to her. This is not mandatory but an option available to you. To schedule a meeting with Cristina, go here: <https://calendly.com/cbaciu0/30min>, or reach out to her directly.

Application: Students will submit an application to join the Cooperation Scholars Program no later than **May 15, 2023**.

Student safety and support statement:

Your safety and well-being are more important than anything else happening in the program. Please feel free to reach out to Cristina Baciú or any of us if you need to talk. Any student who faces challenges securing their food or housing is urged to contact the Dean of Students for support (<https://eoss.asu.edu/dos>). Furthermore, please notify Cristina Baciú or any of us if you are comfortable in doing so. This will enable us to provide any resources we can.

Student Responsibilities and Expectations:

Failing to meet any one of the following will result in one or more of the following actions: 1) failure to renew the contract for the next semester, 2) lowering letter grade for those receiving research credit, 3) declining to provide a letter of recommendation from Dr. Aktipis.

1. Attend weekly lab meetings on Wednesdays, 12-1 pm. Missing more than 2 lab meetings within one semester without adequate documentation will be seen as failing to meet this expectation.
2. Attend at least 2 methods modules
3. Respond to communications (email & slack) from program directors and team leadership within 24 business hours.
4. Maintain confidentiality of subjects and sensitive private data
5. Complete and keep track of project tasks assigned by mentor/team leaders
6. Communicate any questions or concerns about project/other work to your mentor
7. Provide a **portfolio of work** completed at the end of the semester.

Portfolio - Mandatory outputs (to be turned in to Cristina Baciú):

- Satisfactory completion of a methods application at the end of the semester. This is an opportunity to demonstrate the acquisition of some ability in the methods relevant to the things you worked on and learned about during the semester. Cristina Baciú will provide the methods application prompt in early April.
- Statement of impact of about 300-500 words; due by April 16, 2023.
- At least one additional item from the list of suggested possibilities below.

Portfolio - Suggested possibilities (choose at least one, based on your interests & goals):

- Certificates for completing 3 professional development courses of your choice. You can use platforms such as LinkedIn Learning, edX, or Coursera (please choose only FREE options as you shouldn't nor do I expect you to pay for these). One course will be due at the end of February, 2nd due at the end of March, and 3rd due at the end of April.

- Update/review your CV/Resume/Personal Statement for internships, jobs, or graduate school
- Create or update your own website (and add papers, methods, etc.)
- Create and/or update your LinkedIn/other social media professional profile
- Develop social media campaigns about the work being done in the program
- Develop a sci-art project
- Write a blog post or another type of article for broad audiences
- Write and submit a grant
- Something else: feel free to suggest other potential outputs

***You must communicate your preferred deliverables no later than January 31, 2023, by sending either a Slack message or an email to Cristina.

Research Mentor Responsibilities:

- Promptly respond to email/Slack and questions
- Provide background material for the literature review
- Provide guidance about progress and future directions
- Assist with the scientific write-up
- Assist with finding other research and scientific opportunities
- Assign project tasks and track progress

Professional Development Mentor Responsibilities:

- Develop and deliver regular professional development sessions
- Work with students 1:1 to hone in skills related to their professional goals
- Assist students in identifying and solving impediments that can hinder their success in college/ broader career plans
- Connect with relevant resources for their academic and professional goals

Spring 2023 Schedule - Meeting on Wednesdays, 12-1 pm, PSY120

Note: schedule is subject to change

Date	Topic	Readings & To Do's
January 18	What is the Cooperation Science Network ?	<ul style="list-style-type: none"> - Introductions - Syllabus - Expectations
January 25	Seminar 1: Read & discuss papers	Athena Aktipis
February 1	Professional development 1	Nicole Hudson
February 8	Seminar 2: Read & discuss papers	Athena Aktipis
February 15	Professional development 2	Cristina Baci
February 22	Seminar 3: Read & discuss papers	Athena Aktipis
March 1	Professional development 3	Cristina Baci
March 8	No meeting, Spring Break	
March 15	Seminar 4: Read & discuss papers	Athena Aktipis
March 22	Professional development 4	Cristina Baci
March 29	Seminar 5: Read & discuss papers	Athena Aktipis
April 5	Professional development 5	Cristina Baci
April 12	Seminar 6: Read & discuss papers	Ona Wang
April 19	Professional development 6	Cristina Baci
April 26	Semester recap, feedback & plans for future	

Other Important Dates/Things to keep in mind:

1. Drafts of your portfolios are due by March 31, 2023 to Cristina by Slack or email. Feedback will be provided and you'll have the chance to improve your portfolio by its final due date.
2. Final portfolios (incl methods applications) are due by April 16, 2023 to Cristina by Slack or email.
3. In order to ask for a letter of recommendation, you must have worked in the program/lab for at least one full semester.

Papers to read and discuss - all the readings are available in the following google folder:

<https://drive.google.com/drive/folders/1IbH8p2adCbyv72eopt1QiXeG3XJDNRI?usp=sharing>

Seminar 1

- Aktipis, A. (2016). Principles of cooperation across systems: from human sharing to multicellularity and cancer. *Evolutionary Applications*, 9(1), 17-36.
- Raihani, N. (2021). *The Social Instinct: How Cooperation Shaped the World*. Chapter 1.

Optional:

- Aktipis, A., Cronk, L., Alcock, J., Ayers, J. D., Baciú, C., Balliet, D., ... & Winfrey, P. (2018). Understanding cooperation through fitness interdependence. *Nature Human Behaviour*, 2(7), 429-431.
- Cronk, L., Steklis, D., Steklis, N., van den Akker, O. R., & Aktipis, A. (2019). Kin terms and fitness interdependence. *Evolution and Human Behavior*, 40(3), 281-291.

Seminar 2: Risk pooling, interdependence and cooperation

Go through the HGP website to understand the project: <http://www.humangenerosity.org>

Read

- What are need-based transfers?
<http://www.humangenerosity.org/what-are-need-based-transfers>
- Cronk, L., & Aktipis, A. (2021). Design principles for risk-pooling systems. *Nature Human Behaviour*, 5(7), 825-833.

Optional:

- Hao, Y., Armbruster, D., Cronk, L., & Aktipis, C. A. (2015). Need-based transfers on a network: a model of risk-pooling in ecologically volatile environments. *Evolution and Human Behavior*, 36(4), 265-273.
- Uncertainty/Rancher paper from Diego

- Claessens, S., Ayers, J. D., Cronk, L., & Aktipis, A. (2021). Need-based transfer systems are more vulnerable to cheating when resources are hidden. *Evolution and Human Behavior*, 42(2), 104-112.

Seminar 3: Cancer as cellular cheating

- Aktipis, A. (2020). *The Cheating Cell: How Evolution Helps Us Understand and Treat Cancer*. Chapter 1.
- Aktipis, A. (2021). How Evolution Helps Us Understand Cancer and Control It. *Scientific American*.
<https://www.scientificamerican.com/article/how-evolution-helps-us-understand-cancer-and-control-it>

Optional:

- Aktipis, A. (2020). *The Cheating Cell: How Evolution Helps Us Understand and Treat Cancer*. (Any/all chapters) (buy the book if you'd like to read more or ask Cristina about borrowing a copy).

Seminar 4: Conflict within: microbiome & microchimerism

- Alcock, J., Maley, C. C., & Aktipis, C. A. (2014). Is eating behavior manipulated by the gastrointestinal microbiota? Evolutionary pressures and potential mechanisms. *Bioessays*, 36(10), 940-949.
- Boddy, A. M., Fortunato, A., Wilson Sayres, M., & Aktipis, A. (2015). Fetal microchimerism and maternal health: a review and evolutionary analysis of cooperation and conflict beyond the womb. *BioEssays*, 37(10), 1106-1118.

Optional:

- Aktipis, A., & Guevara Beltran, D. (2021). Can some microbes promote host stress and benefit evolutionarily from this strategy?. *BioEssays*, 43(1), 2000188.
- Wasielewski, H., Alcock, J., & Aktipis, A. (2016). Resource conflict and cooperation between human host and gut microbiota: implications for nutrition and health. *Annals of the New York Academy of Sciences*, 1372(1), 20-28.

Seminar 5: Other topics in cooperation: Cooperation in kombucha

- Blog post: What is kombucha? By Alex May
<https://www.aktipislab.org/blog/what-is-kombucha>
- May, A., Narayanan, S., Alcock, J., Varsani, A., Maley, C., & Aktipis, A. (2019). Kombucha: a novel model system for cooperation and conflict in a complex multi-species microbial ecosystem. *PeerJ*, 7, e7565.

Optional:

- Preprint from the Night of the Open Door experiments

Methods Modules & Seminars

(will be scheduled at a later time, based on everyone's availability)

Methods 1: Models of cooperation

Go through this blog post and download the model (optional: read the papers)

<http://www.athenaaktipis.org/blog/how-to-walk-away>

Methods 2: Experimental design for lab studies

Methods 3: Fieldwork and qualitative data collection

Methods 4: Lab work with Kombucha

Methods 5: Big data and R

Here are some words of advice from Research Assistants who previously worked in our research groups.

“Don't be afraid to ask questions and reach out to anyone in the lab! Everyone is there to learn and grow and everyone wants to help you do the same. Take some time on your own to reflect on what you want out of the lab and then take steps to reach those goals alongside your peers and mentors.”

“Ask any and every question they have because there is no such thing as a stupid question and chances are someone else has the same one. When discussing research, feel free to chime in with things that the research reminds you of or may seem connected to. Talk to those that are in the lab with you and make connections.”

“Attend the meetings and soak up as much information as possible, pay attention even if you aren't knowledgeable on a certain topic.”

All the Cooperation Scholars are expected to remain professional during the course of the semester/summer. At times we may talk about controversial, and sometimes emotionally charged topics as scientists. While it may be hard to separate personal feelings from responses during discussions, please remember that the goal of science on these topics is to scientifically understand and explain and not to judge. As a result, we have a zero-tolerance policy for comments that do not approach these topics in a scientific or professional manner.