

RPP Internship Program for Graduate Students Call for Applications

The [Research + Practice Collaboratory](#) is pleased to introduce its Research-Practice Partnership (RPP) Internship Program. The Collaboratory team at the University of Colorado Boulder is organizing this program to increase RPP capacity building with support from the National Science Foundation. The internship is designed to provide doctoral students with a short-term opportunity to gain apprenticeship with an RPP-specific skill set that is not generally available in students' graduate program experiences. Throughout the internship, interns will grapple with the following questions:

- How do I figure out something in collaboration with a team?
- How do I organize co-design? (Apprenticeship as a peripheral participant)
- How do I implement research measures that can inform timely improvement for the design process?

We have identified five partnerships with interest in hosting and mentoring an RPP intern:

1. **California Tinkering Afterschool Network (CTAN):** This partnership seeks to document implementation of effective STEM-rich tinkering/making programs in afterschool (e.g., teaching, learning, professional development, etc.) through joint research and creation of professional development resources.
2. **EDC Auburn School Department Early Math Initiative:** Collaboratively develop and investigate strategies to improve mathematics learning in early grades classrooms implementing a 1:1 iPad initiative in Auburn, ME
3. **Inquiry Hub (iHub):** Collaboratively design NGSS-aligned curriculum materials with teachers and district leaders in Denver Public Schools
4. **Middle School Mathematics and the Institutional Setting of Teaching (MIST):** This project seeks to develop an empirically grounded theory of action for improving the quality of mathematics instruction at scale.
5. **Seattle-Renton Science Education Partnership:** Collaboratively design professional development with local districts, focused on the vision of the *K-12 Framework for Science Education* and *NGSS*

In addition to the specific opportunities provided by the hosting institution, each intern will be invited to participate in Collaboratory-wide events and have opportunities to engage with the broader network of partners.

Up to three doctoral students (no more than one per partnership) will be selected to participate in the RPP Internship Program based on their match with the partnership's goals and with the learning opportunities that can be provided for the student. The ideal candidate will be in the second or third year of a doctoral program that does not currently offer opportunities to engage in partnership work.

Each partnership has additional criteria for candidates that apply. Please see details in the attached descriptions of the partnerships and the internship learning opportunities.

Logistics

Each partnership has described a scope of work and ideal timeframe for the internship. The time commitment ranges from two to five months. In addition, we expect that each intern will continue to collaborate with the partnership at the conclusion of the on-site internship.

A stipend of \$1800 per month will be provided for each intern for the duration of the on-site internship. This is intended to cover local expenses including housing, meals, and incidentals. In addition, assistance with round trip travel between the student's home institution and the internship location will be provided. Interns are responsible for securing their own housing.

To Apply

Interested students should complete the attached application to describe your experiences, interest in the program, and availability to participate. In addition, we ask that each applicant submit a current CV and a letter of support from his/her graduate advisor.

Please submit the completed application, CV, and letter of support to Tiffany Lee (tiffany.r.lee@colorado.edu) by Tuesday, March 31, 2015. Applicants will be contacted by Friday, April 17, 2015, regarding their application status.

RPP Internship Application

Please email your completed application, CV, and letter of support to Tiffany Lee (tiffany.r.lee@colorado.edu) by Tuesday, March 31, 2015.

Note: Individual partnerships may require a follow-up telephone interview with you.

Name:

Email:

Graduate Program/Institution:

Advisor:

Current Year in Program:

In which internship opportunity would you like to participate as an intern? *Please select the one that is the best fit between your goals and the needs of the partnership.*

What are your preferred start/end dates for the internship?

Are you available for all scheduled events identified by the partnership (if applicable)?

How does the internship opportunity that you chose align with your interests, experiences, skills, and expertise? How does this support your professional goals and objectives? (500 words maximum)

What knowledge and/or skills do you hope to gain that are not readily available to you in your current graduate program? (250 words maximum)

California Tinkering Afterschool Network & Research+Practice Collaboratory

Location of partnership: Exploratorium, San Francisco, CA

Contact name: Jean Ryoo

Contact email: jryoo@exploratorium.edu

About CTAN

CTAN is a partnership involving the Exploratorium (San Francisco), Discovery Cube (Santa Ana), Techbridge (Oakland), and the Community Science Workshop (Fresno and Watsonville). Each year, our network reaches over 2,000 K-8 children participating in partner afterschool sites in five non-dominant and low-income communities. Together we seek to deepen our network relationships, refine program strategies, and generate new documentation and understanding that can support the implementation of effective STEM-rich tinkering programs in afterschool. We intend to do this through Design Based Implementation Research (collaborative practitioner-researcher research methods) that offer evidence-based descriptions of: 1) STEM-rich tinkering, learning, and teaching in afterschool; 2) the nature, focus, and formats of professional development that best support facilitators/staff; and 3) the infrastructure and relationships necessary to sustain and scale STEM-rich afterschool tinkering programs. Our network promotes equitable STEM learning opportunities for all children through afterschool tinkering/making. This is because tinkering/making is a fundamentally human activity that engages practical, physical, playful, and collaborative modes of inquiry that are everyday practices familiar to most people, while simultaneously requiring makers/tinkerers to learn about STEM phenomena (e.g., light and reflection, batteries and motors, mechanical motion, force and momentum, etc.) and practices (e.g., pursuing an inquiry, collecting and analyzing data, redesigning based on evidence, etc.) that are commonly taught in the K-12 curriculum (Vossoughi & Bevan, 2014; Bevan, Gutwill, Petrich, & Wilkinson, 2014). The tinkering/making approach engages STEM phenomena and practices through hands-on activities that involve a “generative process of developing a personally meaningful idea, becoming stuck in some aspects of physically realizing the idea, persisting through the process, and experiencing breakthroughs as one finds solutions to problems” (Petrich, Wilkinson, & Bevan, 2013, p. 99; Vossoughi, Escudé, Kong, & Hooper, 2013). The aesthetic and playful nature of tinkering/making that emphasizes process over product without involving test scores or grades also offers a low barrier for participation, exciting learners who may not typically identify as successful with STEM or may feel reluctant to engage with STEM in teacher-centered, text-based, test-driven school contexts (Vossoughi & Bevan, 2014).

Ideal timeframe for internship: May-August 2015

Are there any scheduled events that the intern should be available to attend?

- RPP-Funded R+P Equity Tool Development Meeting (either 5/14-5/15 or 5/28-5/29)
- Maker Faire (5/16-5/17)
- R+P Collaboratory Retreat (June 2015)
- Tinkering Workshop (If it falls during the internship – it is currently scheduled for September)

Minimum / maximum length of time for the internship: 3-5 months

Description of internship opportunity:

- **What opportunities do you have to offer an intern?**
 - Research experience at partner sites (helping with filming and writing field notes)
 - Assisting with organizing/running working meetings and workshops

- Participation in museum-wide events
- Publishing research briefs
- Reading new educational literature
- Creating web and physical dissemination formats for research+practice partnership tools developed by CTAN and at the RPP-funded meeting
- **What skills will they learn or experience will the intern gain that is unique to partnership work?**
 - Understanding and translating ideas from academic articles into formats that are digestible for wider audiences and practitioners who do not have the time to read articles (writing research briefs)
 - Writing field notes; transcribing audio and video recordings from research sites
 - Understanding how research is disseminated
 - Filming at research sites
 - Designing web and physical tool formats that are accessible/usable by both researchers and practitioners
- **What role will you, as a host, play during the internship?**
 - Jean = providing mentorship regarding field research, career pathways through education (grad school to the museum), connecting the intern to new professional networks, close work on research+practice partnerships/collaboration
 - Molly Shea = providing mentorship in relation to writing research briefs, career pathways through education, connections to professional networks, and research +practice partnerships/collaboration
 - Nicole Bulalacao = providing mentorship on organizing/running workshops/ meetings.
- **How might the intern continue to be involved in the work after the conclusion of the internship?**
 - Continued participation in publishing research briefs

Description of recommended qualifications / past experiences:

- **What skills or experiences would an ideal applicant bring to the work?**
 - Comfort with reading and analyzing academic articles
 - Strong writing skills
 - Experience in afterschool teaching/learning a plus
 - Spanish language fluency a plus
 - Understanding of the field of education
 - Strong interpersonal skills – works well in collaborative environments

EDC- Research and Practice Collaboratory: Auburn School Department Early Math Initiative

Location of partnership: (organization and city, state) Auburn School District, Auburn, Maine

Contact name: Pam Buffington, Catherine McCulloch

Contact email: pbuffington@edc.org, cmculloch@edc.org

About the EDC- Research and Practice Collaboratory: Auburn School Department Early Math Initiative:

Partners: Education Development Center, Inc. (and broader R+P Collaboratory partners as appropriate), the Auburn School Department (Auburn, ME), the University of Maine at Farmington, and the University of Southern Maine.

The R+P Partnership aims to work collectively to investigate and design strategies to target learning and teaching of mathematics in PK-2 classrooms where all students and teachers have 1-to-1 mobile technologies (iPads.) School and district leaders have determined that the persistent problem of low mathematics achievement is an area that requires deeper investigation and focus. They are committed to work with our team of researchers and STEM education specialists to engage in iterative cycles of collaborative design and testing to improve practice over a 2 ½ year period of time. This team will also engage district administrators and staff presently working on graduate and doctoral work to build internal capacity over the life of the adaptation site work. The Collaboratory is engaging researchers from the University of Southern Maine and the University of Maine at Farmington to strengthen local research and practice relationships, enhance capacity within the state related to these issues, and in order to inform and sustain ongoing and future improvement efforts within this district.

Ideal timeframe for internship: (can include a range of dates)

- Now through end of calendar year 2015, with option to continue through spring or summer 2016
- **Are there any scheduled events that the intern should be available to attend? (Inquiry group meeting, PD workshops, etc)**
 - Monthly co-investigation and PD meetings in Auburn, ME, as well as additional teacher PD sessions in summer 2015

Minimum / maximum length of time for the internship:

- Minimum = one semester or one summer
- Maximum = none

Description of internship opportunity:

- **What opportunities do you have to offer an intern?**
 - Experience working with a diverse team of researchers and educators in Auburn, ME, to collaboratively develop and investigate strategies to improve mathematics learning in early grades classrooms implementing a 1:1 iPad initiative
 - Opportunities to help collect teacher and student observation data as part of ongoing co-investigation efforts
 - Opportunities to learn and/or apply data analysis skills by helping the team analyze classroom observation and student work data collected as part of the project's collaborative research efforts
 - Opportunities to help write, disseminate, and publish research findings, in collaboration with the project team
 - Opportunities to help design teacher professional development activities that support ongoing co-investigation efforts

- Opportunities to help design tools to facilitate collaborative meetings and work sessions among education researchers and practitioners
- **What skills will they learn or experience will the intern gain that is unique to partnership work?**
 - Greater knowledge of the challenges that education researchers and practitioners face when they collaborate to investigate and address problems of mutual interest
 - Greater knowledge of strategies to promote collaboration between these two groups
 - Deeper understanding of how one district is using iPads to promote learning in early mathematics, and barriers and opportunities to promote evidence-based classroom practice in this arena
- **What role will you, as a host, play during the internship?**
 - EDC project members will work closely with the intern to include him/her as a member of collaborative team working in Auburn, ME
 - EDC project members will work with the intern to identify a manageable set of tasks to complete and roles to play during the internship, and will monitor and provide regular feedback on task and role performance
- **How might the intern continue to be involved in the work after the conclusion of the internship?**
 - If the intern is engaged with the higher education mathematics education faculty, he or she could potentially stay connected through the university contacts.

Description of recommended qualifications / past experiences:

- **What skills or experiences would an ideal applicant bring to the work?**
 - Knowledge of early mathematics teaching and learning
 - Knowledge of interactive technology use to support mathematics learning, particularly in the early grades
 - Experience with qualitative data collection (e.g., classroom observations, student interviews) and analysis
 - Experience analyzing student mathematics work and classroom discourse

Inquiry Hub

Location of partnership: (organization and city, state) University of Colorado Boulder; Boulder, CO

Contact name: Heather Leary

Contact email: heather.leary@colorado.edu

About Inquiry Hub

The work of the iHub continues a long-standing research-practice partnership between researchers from the School of Education and Institute of Cognitive Science at CU-Boulder, computer scientists from a large research-non-profit—the University Corporation for Atmospheric Research (UCAR)—and district administrators and teachers from DPS. This research-practice partnership (RPP) receives funding for its work from the National Science Foundation through a multi-year scale-up grant from the Cyberlearning Program (Award #1147590). This partnership seeks to support instructional improvement goals of Denver Public Schools (DPS) through the co-design and implementation of a digital platform called the iHub. iHub is a “one stop shop” for teachers where they can customize and add to district-adopted curriculum materials to help align instruction at scale to new, ambitious national standards such as the Common Core State Standards and the Next Generation Science Standards. In addition, by engaging teachers in co-design of iHub resources, the partnership also aims to increase teachers’ understanding of standards through professional development.

Ideal timeframe for internship: (can include a range of dates)

- Are there any scheduled events that the intern should be available to attend? (Inquiry group meeting, PD workshops, etc.)
 - Ideal start date is May 20, 2015 (in Boulder), through August 1, 2015
 - Absolutely must be present by mid-June 2015 design workshop

Minimum / maximum length of time for the internship:

Min: 8 weeks, Max: 11 weeks

Description of internship opportunity:

- **What opportunities do you have to offer an intern?**

Apprenticing to a participatory design process involving teachers, district leaders, curriculum experts, technology experts, and science education researchers. The design process will focus on building a high school biology unit focused on evolution that is aligned to the Next Generation Science Standards. Doctoral students will gain experience and exposure with the collaborative design process, as well as with data collection and analysis that informs the iterative process of the co-design and partnership.

- **What skills will they learn or experience will the intern gain that is unique to partnership work?**

Opportunity to work in a dynamic and supportive district that is building capacity to implement NGSS ahead of standards document

Work with a multidisciplinary team comprised of curriculum developers, assessment experts, district leaders, scientists, and science education researchers

Develop a policy understanding of role of standards and other forms of instructional guidance in shaping teaching practice, curriculum design

Organizational strategies for managing research-practice partnership logistics and research.

- **What role will you, as a host, play during the internship?**

Participation in all team meetings and design workshop (3 times per week)
Guidance and mentoring to intern on the project
Provide office space with the research team at CU's East Campus location.

- **How might the intern continue to be involved in the work after the conclusion of the internship?**

Participate in online Zoom meetings to continue design work into the school year.
Serve as a reviewer of curriculum unit on evolution.
Continued data analysis, opportunity to write collaboratively as desired/time permits

Description of recommended qualifications / past experiences:

Knowledge of the *Framework for K-12 Science Education* and *NGSS*
Basic familiarity with instructional models and materials in science
Ideal to bring scientific understanding of evolution and classroom experience in teaching science
An understanding of how to integrate technology into teaching is a plus

MIST (Middle School Mathematics and the Institutional Setting of Teaching)

Location of partnership: Vanderbilt University, Nashville, Tennessee

Contact name: Erin Henrick

Contact email: erin.henrick@vanderbilt.edu

About MIST

MIST partners include researchers and practitioners from Fort Worth Independent School District, Jefferson County (Louisville) Public Schools, Vanderbilt University, University of Washington, and Michigan State University. The partnership goals are to:

- Iteratively revise and improve an empirically-grounded theory of action for what it takes to support instructional improvement in middle-grades mathematics at scale by testing and revising conjectures about school- and district-level supports and accountability relations
- Contribute to the collaborating districts' instructional improvement efforts by providing district leaders with actionable feedback about how their strategies are playing out on the ground and by making recommendations about how the strategies might be improved
- Support the district's capacity for instructional improvement by co-designing and co-leading professional development for school leaders and coaches with district leaders

Ideal timeframe for internship: (can include a range of dates)

Summer or Fall 2015 would be fine. The MIST grant ends July 2016.

Are there any scheduled events that the intern should be available to attend? (Inquiry group meeting, PD workshops, etc)

The last two Feedback Meetings are scheduled for May 5th and June 4th or 5th.

Unfortunately, since next year is the analyses year for MIST, there is not any data collection planned at this time for the 2015-2016 school year.

Depending on what happens this semester with the practical measures work, it is very possible that we might be working in one of our partner districts during the fall of 2015, designing, piloting, and refining practical measures to inform instructional improvement in mathematics. However, this would be pilot work for a future funding request.

The MIST research team meets regularly to present research, discuss current analyses, and receive feedback from one another. Analytical sub-teams also meet as needed (focusing on MIST lines of investigation including district leadership, instructional leadership, teacher networks, coaching, teacher collaborative time, and measures of change).

Minimum / maximum length of time for the internship:

3-5 months

Description of internship opportunity:

We have MIST data that (depending on the research interests/expertise of the intern) could be accessed for analyses.

After Spring 2015, we will have collected data around the "practical measurement" aspect of our project. We will have developed student survey measures to assess 1) the quality of student discourse in small groups, 2) the quality of classroom discourse at the end of a lesson, and 3) the level of teacher press for student discourse during a lesson. We also plan to develop additional

measures to assess the quality of teacher collaborative meetings to support the work of improving of student discourse.

What skills will they learn or experience will the intern gain that is unique to partnership work?

- How to develop and use practical measures to improve the quality of instruction.
- How to develop routines to support quick, efficient data collection and analyses processes.
- How to conduct partnership work with large urban school districts.

The intern will work on problems of practice, and potentially collaborate with district leaders to work on improving aspects of instruction. However, we cannot fully specify the scope of this work at this time. At minimum, the intern should be able to assist with analysis and dissemination related to collaboration that focuses on improving the quality of student discourse (the work is expected to take place Spring 2015).

What role will you, as a host, play during the internship?

I, along with Paul Cobb, would support this work by 1) ensuring that the intern has access to Vanderbilt and MIST resources, 2) ensure that the intern participates fully in all aspects of the MIST research team, including attending sub-team meetings, full team meetings, and specifically all aspects of the “practical measures sub-team.”

How might the intern continue to be involved in the work after the conclusion of the internship?

The intern will be encouraged to develop working relationships with graduate students and professors on the MIST project. The intern could continue to contribute to analyses that the intern participated in while working with MIST team in person.

Description of recommended qualifications / past experiences:

It would be ideal if the participant had teaching experience and solid understanding of high-quality inquiry-oriented mathematics instruction. It would also be helpful if the intern had experience working in a large urban district.

The Seattle-Renton Science Education Partnership

Location of partnership: [Institute for Science and Math Education](#) at [the LIFE Center](#), University of Washington, Seattle WA

Contact name: Philip Bell (c/o Nancy Price, Institute Manager)

Contact email: Nancy Price <pricenj@uw.edu>

About the Seattle-Renton Science Education Partnership:

Science education is experiencing a growing envelope of implementation work associated with the new vision outlined for K-12 Science Education (NRC, 2012) and the *Next Generation Science Standards* derived from that vision. The University of Washington Institute for Math and Science Education and the Seattle and Renton Public School districts have formed a sustained partnership involving teachers, district curriculum staff, STEM professionals and learning sciences researchers focused on K-8 science improvement across these educational systems with a related goal of developing resources for professional learning that could be adapted and used in other educational systems. A leading focus of the work is to build teaching capacity and curricular alignment associated with the epistemic practices for science and engineering design in the new vision. Central to this project is a design-based approach in which groups of teachers play a central (supported) role in the enhancement of currently adopted district curriculum materials. Teachers work in grade-level small groups—in collaboration with district staff, learning scientists and STEM professionals—to develop, test, study and refine curriculum adaptations focused on supporting student learning opportunities through engagement in the epistemic practices. We use Design-Based Implementation Research (DBIR) methods (Penuel et al., 2011) to develop and study a host of processes and outcomes related to the refinement of curriculum materials, their enactment in classrooms across these collaborative networks of professionals, and the routines and tools that support this work within these networks. Our research activities document problems of practice and identify instructional improvement strategies at several levels: systems-level district and multi-district management work, professional learning and instructional practice of teachers; and cultural exchanges among teachers, researchers, district staff, and STEM professionals.

[website](#)

Ideal timeframe for internship:

- The partnership is fully engaged in fieldwork and research from mid-August through May each year. June and July are dedicated to more intensive research activities.
- Are there any scheduled events that the intern should be available to attend? (Inquiry group meeting, PD workshops, etc)
Annual Teacher Summer Institute – August 17-21, 2015
Inquiry Group in Formative Assessment – July 27-29, 2015

Minimum / maximum length of time for the internship:

- Recommended minimum length of stay: 1 month
- Recommended maximum length of stay: 3 months

Description of internship opportunity:

- **What opportunities do you have to offer an intern?** The partnership is focused on implementing the new vision for K-12 science education detailed in the NRC Framework for K-12 Science Education and the Next Generation Science Standards in two urban school districts at the systems level. We partner with the two districts and the Institute for Systems Biology (ISB) to engage about 100 teachers per year in a curriculum adaptation process associated with the district's existing instructional materials in science. We are currently focused on grades 3 through 8—with plans to expand into high school in the coming years.

The intern would join the UW research team as a collaborating member of the group. They would be able to engage in and learn about: (a) the research-practice partnership process at the project leadership level, (b) help design and deliver associated professional development experiences for teachers, (c) join UW researchers on classroom field visits to support teachers and document aspects of teaching practice and student learning, and (d) work with UW researchers to conduct data archiving and analysis associated with the effort. Beyond the experiences associated with the partnership, the Institute for Science and Math Education, the LIFE Science of Learning Research Center, and the College of Education at the UW have a broad range of active research projects and groups. It would be possible for interns to visit with other groups and perhaps sit in on course offerings.

- **What skills will they learn or experience will the intern gain that is unique to partnership work?** The project is a fully formed research-practice partnership engaged in design-based implementation research (DBIR). The intern will be able to learn about how to conduct such partnerships and how to focus research on the unfolding aspects of educational improvement within the existing structures and routines of urban school districts. Specific skills associated with the internship include: partnership development, project management, design and delivery of professional development, cross-sector / interdisciplinary collaboration (with researchers, teachers, district staff), classroom observation & possibly co-teaching (depending on school schedules), video-based fieldwork and analysis, survey design and analysis, research interviewing, and social network analysis.
- **What role will you, as a host, play during the internship?** The UW research group includes eight faculty, graduate students, and staff. We plan to bring new members into the group using an apprenticeship approach that would be negotiated with the intern. Philip Bell and Andy Shouse would serve as the primary mentors for the intern, although they would routinely be working with the broader team.
- **How might the intern continue to be involved in the work after the conclusion of the internship?** Our group has hosted research interns previously associated with other efforts. These individuals have tended to continue to collaborate on specific aspects of the work (e.g., around resulting conference submissions or publications). They have also frequently come back for subsequent research-focused visits.

Description of recommended qualifications / past experiences:

- **What skills or experiences would an ideal applicant bring to the work?** We can imagine a broad range of individuals being able to successfully partner with us in the work through this internship. We hope that they would be deeply interested in working on and learning about multiple aspects of a research-practice partnership and bring a positive and collaborative stance that is deeply respectful to the practitioners involved in the effort. Ideal applicants will bring a prior history of working in K-12 science education.