



# REMOTE RESEARCH OPPORTUNITIES

SPRING & SUMMER | 2024

# IRI-NC

INTERNATIONAL RESEARCH INSTITUTE  
OF NORTH CAROLINA



# SECTION 1

## O U R D N A

Teenagers with university faculty researching remotely

## REMOTE RESEARCH LABORATORIES

---

### How IRI Started

IRI was born from the struggles of the COVID-19 pandemic. We wanted to continue to make research opportunities available to talented high school students safely. We continue this mission with remote research opportunities for students from around the world.

Every IRI student works with university faculty, not just graduate students, from world-renowned universities.

Whether you are from a rural community without access to university laboratories or just looking to boost your resume, IRI can help.

**Research is the key to humanity's progress. Every journal article brings us one small step closer to solving mankind's problems.**

**-Dr. Robert Malkin, Co-Founder**



## HOW DOES IT WORK?

---

This is your chance to learn a lot about something you are passionate about and contribute to the current understanding of that subject.  
Together we can make a difference!

### **Academic Freedom**

You will choose a subject that interests you or an active research topic from one of our labs and develop a question that will drive your research.

### **1-on-1 Mentorship**

You will be placed in an IRI lab and work with a Graduate student Mentor and university faculty (PI), developing a strong professional and personal relationship with them.

### **Flexible Schedule**

Your meetings with your Graduate student Mentor or university faculty (PI) will happen every week, depending on your schedule and preferences. They usually last an hour.

### **Guidance and Support**

From there, you will pursue your research question. You will get continuous support for the entire duration of your program.

### **Rigorous Academic Standards**

The content you will be creating will be academic and rigorous. You will use a proper academic tone, scientific vocabulary, and you will learn how to reference sources properly.

### **Presentation and Academic Publication**

Based on the program you select, you could finish the program by presenting your findings to the entire IRI Community or potentially publishing your results in a peer-reviewed, international, academic journal. You will be supported throughout your work with IRI from research approval (typically IRB) to journal publication.

## WHY SHOULD I JOIN IRI?

You will gain research and presentation skills as well as expertise on the research topic. You may take just a single introductory course, or the Research Assistant course where you can contribute to the world's knowledge! We also have a group program where you may conduct your research collaboratively with other students.

You may receive letters of recommendation and valuable networking from your Graduate student Mentors and Principal Investigators based on your performance during the program.

If you complete multiple trimesters with IRI, you may author a publication in a peer-reviewed scientific journal, something sure to make you stand out from other candidates when applying to top-tier universities. Some universities allow supplemental documents when you are applying. You could add your final product with IRI to your application!

You will also polish valuable soft skills like time management, work-related resiliency, networking skills, assertive communication, conflict resolution, and many more. They will help you be more prepared for college and university life.

*"My experience during this research program was challenging. Before this program I had no experience in research, my expectations for this program was just to google information about a certain topic and present my findings. This program is so much more than that, I have learned how to write a research paper, cite sources, read through papers while quoting important points. This program has prepared me for the future and I am glad that I have participated in it." -Viggo*



## CHOOSING IRI

---

### IRI is definitely for you if



You are a teenage student (ages 14-19) or a recent high school graduate.

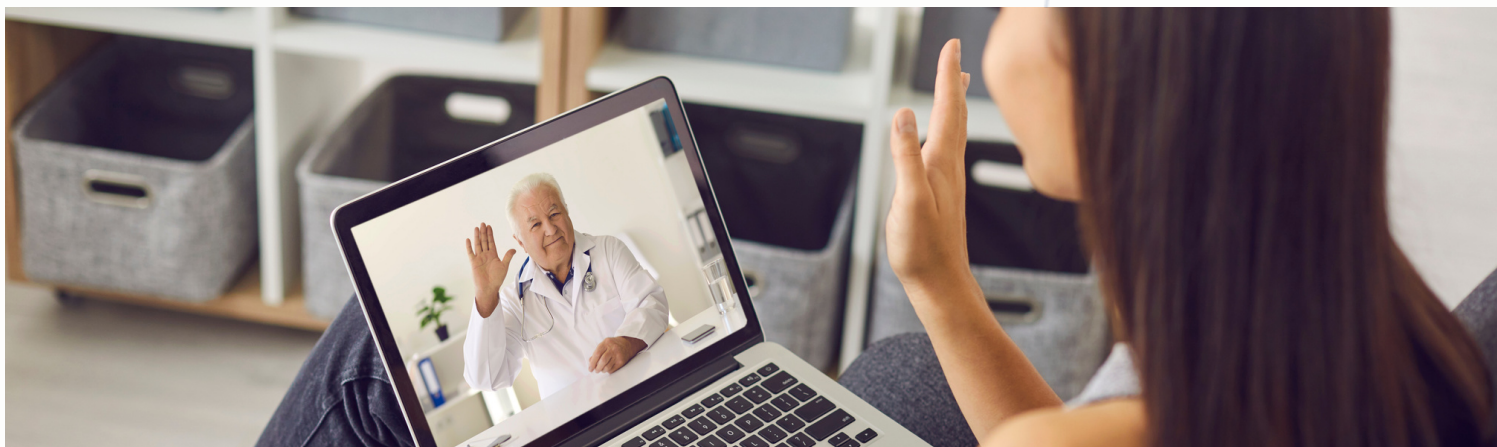


You are fluent in English (speaking and writing competency) since all our work happens in English. So this could be an excellent opportunity for you to develop some science-related vocabulary!

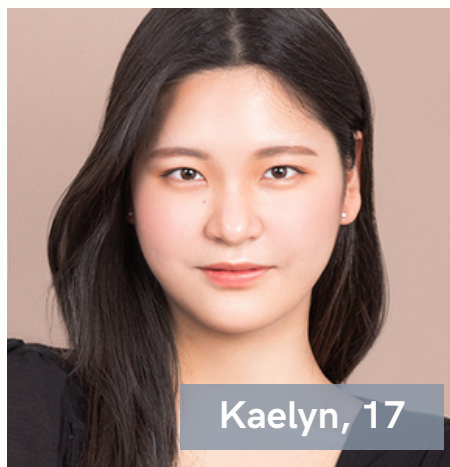
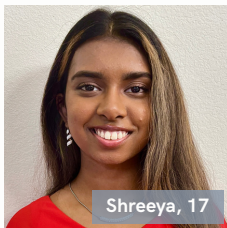
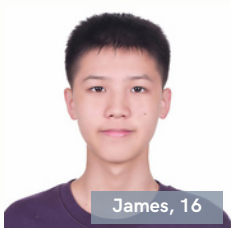
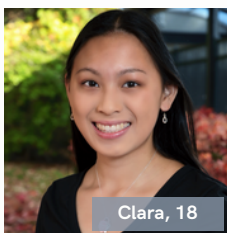
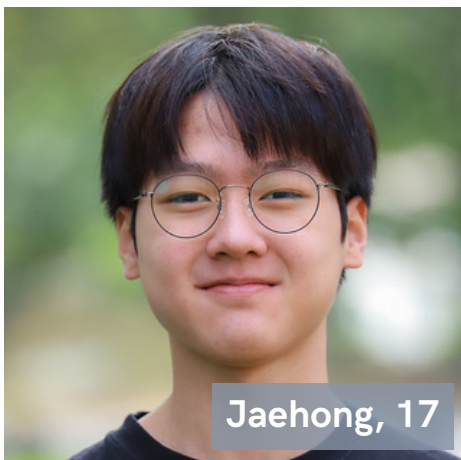
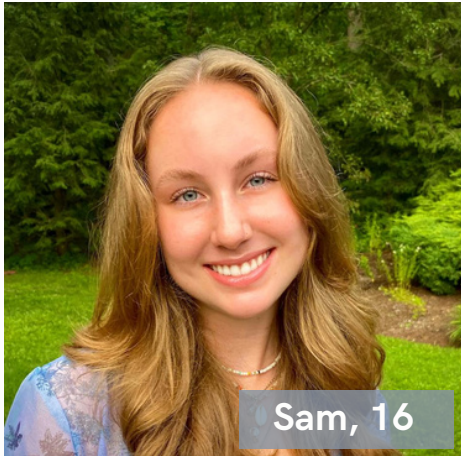


You are interested in engineering, medicine, math or science: IRI will be particularly relevant and exciting! You may have an easier time understanding the research literature if you have coursework in biology or higher math and statistics. However, you are welcome to choose from many different research topics.

**We are one of the few research programs that connect you directly with a top-tier university faculty!**



## OUR STUDENTS



- 100% of our Alumni would recommend IRI to their peers and friends.
- Our students & staff members are located in 18 countries.
- We embrace diversity and inclusion in all aspects of our operations.
- Our previous students have described their experience with us as:

Rewarding

Eye-opening    Enriching

Challenging    Productive

Enlightening    Informative

Fascinating    Efficient

Interesting



## SECTION 2

# O U R P R O G R A M S

Our programs are designed for you to learn how to research while learning more about a subject that you are passionate about.



## INTRODUCTION TO RESEARCH

Develop a research question and produce a literature review based on your research interests, while learning the basics of research.

### The Program

The foundation of all research is understanding what is known about the topic of interest. In essence, the student becomes an expert on what is currently known about a specific question. This requires an intense study of a narrow area of inquiry. IRI focuses on this skill in our Introduction to Research Program.

You will choose a subject you are interested in researching and develop a question that will drive your research. Based on your question, you will be placed in one of our allied labs and work with a Graduate student Mentor for eight sessions (typically given over two months, but you could also choose to do the Express Intro program, which lasts a month and has 2 meetings per week).



### By the end of the program you will have:



Research Question



3 minute Pitch Presentation



Literature Review



Final Presentation

### The program includes:

- One orientation meeting
- Weekly hour-long meetings with Research Mentor
- Feedback and support from Principal Investigator
- Continuous grammar, style, and spelling revision
- Access to academic databases
- Certificate of Completion
- Option to request a Recommendation Letter
- Alumni benefits & IRI community opportunities
- Professionally produced final presentation video (optional)

## INTRODUCTION TO RESEARCH

---

### Research Examples from our Alumni





- Are non-valved glaucoma drainage devices more effective than standard valvular implants for reducing intraocular pressure and eliminating the need for antiglaucoma medication in children in rural India?
- Is nanomedicine more effective than traditional antibiotics at reducing Tuberculosis rates in Indonesia?
- Is air pollution an environmental cause of breast cancer in women aged 40 above in Taiwan?
- What is the burden of Obstructive Sleep Apnea (OSA) in resource-limited settings?

"I gained lots of new skills by writing a literature review based on my research question. With guidance from my research mentor, I learned what to avoid in scientific writing and the importance of being direct and succinct. To find the right balance between too fluffy, too vague, and not enough information. It was a steep learning curve; I knew nothing about scientific literature review. Everything was new to me: searching for articles, choosing, reading, and analyzing the articles. Overall, the experience was very beneficial. It is something that is not taught inside the classrooms and the skills I gained were new learning experiences."



- Ariana, 14, Indonesia.

### Timeline & Cost

-  Applications are on a rolling admissions basis.
-  Students will typically participate in an 8-week term, but a 4-week version is available  
You will coordinate the meetings with your mentor & PI based on your availability.
-  Starting dates: Twice per month.
-  USD 3450 per student.

## EXPRESS INTRODUCTION TO RESEARCH - 4 WEEKS

The main goal is for you to develop a research question and produce a literature review based on your research interests, while learning the basics of research during the Fall.

### Same Results, Half the time

If you are interested in getting the benefits of the Introduction to Research program in half the time, this is your chance! By choosing the Express Introduction, you can complete the program before graduation, even if you start it as late as the fall of your senior year. By choosing the Express Introduction, you will get the same results as the Introduction to Research Program in half the time. You will still get eight sessions and will meet with your RM twice per week.

### By the end of the program you will have:



Research Question



3 minute Pitch Presentation



Literature Review



Final Presentation

### The program includes:

- One orientation meeting
- 2 weekly hour-long meetings with Research Mentor
- Feedback and support from Principal Investigator
- Continuous grammar, style, and spelling revision
- Access to academic databases
- Certificate of Completion
- Option to request a Recommendation Letter
- Alumni benefits & IRI community opportunities
- Professionally produced final presentation video (optional)

### Timeline & Cost



Applications are on a rolling admissions basis.



Starting dates twice per month.



Students will participate in a 4-week term.

You will coordinate the meetings with your mentor & PI based on your availability.



USD 3450 per student.

## INTRO GROUP

The main goal is for you to collaboratively create a research literature review

### The Program

This is your chance to meet like-minded research enthusiasts from around the globe and develop important attitudes, skills, and knowledge related to research and the subject you choose. You will collaboratively create a Literature Review.

Working with more peers can be an enriching experience, they will support you and you will get to hear about their interests and goals. This program is a great opportunity for you to expand your network while learning about research!



### By the end of the program you will have:



Research Question



3 minute Pitch Presentation



Litrature Review



Final Presentation

### The progam Includes:

- One orientation meeting
- Weekly hour-long meetings with Research Mentor
- Feedback and support from Principal Investigator
- Continuous grammar, style, and spelling revision
- Access to academic databases
- Certificate of Completion
- Option to request a Recommendation Letter
- Alumni benefits & IRI community opportunities
- Professionally produced final presentation video (optional)

## INTRO GROUP

---

### Research Examples from our students

- Electricity Production by Anaerobic Bacteria, specifically Geobacter, in Microbial Fuel Cells through Cellulose Degradation.
- How is technology influential for potential treatments for the Dengue virus?
- How can the efficacy of CRISPR/Cas9-mediated homology-directed repair in basal cells of patients with cystic fibrosis be improved?

I had a great time completing the program and it allowed me to gain research experience as soon as in high school. Research Club taught me how to search for and analyze scientific information. I am glad I got to go through this experience together with my team since it enriched my collaboration skills.

- Alexandra, 17, Slovakia.



### Timeline & Cost



Applications are on a rolling admissions basis.



Students will participate in 8 meetings. Summer group programs meet Thursdays at 9AM EDT.



Two starting dates per month.



995 USD per student.

## RESEARCH ASSISTANT

The main goal is for you to publish a peer-reviewed paper on a question that matters.

### The Program

This is your chance to do a deep dive into research, develop your own data and contribute to the world's knowledge. Your goal is to publish a peer-reviewed, scientific publication! Are you interested in science and maybe pursuing a STEM career? Now you can get ahead and join one of our available labs and see what life is really like in a research lab.



Research Assistants will select novel research questions based on the available projects, to study during their time in the lab (our lab staff is available to help you). You will attend weekly lab meetings and one-on-one mentor meetings (~2 hours of meeting time per week) along with assignments that you will be completing independently (up to 5-10 hours per week). In the end, you will present work products to the lab, staff & peers. There is also the possibility of participating in lab publications, scientific conferences, and supporting your peers doing the Introduction to Research Program.

### By the end of the program you will have:



Most students require multiple Academic Terms to complete and publish their research project.

### Research Examples from our students

- The effect of vaping and nicotine-containing liquids to suppress the immune system.
- Inhalation Technique with Metered Dose Inhalers amongst Pediatric Asthma Patients.
- Estimation of Future Risk of Diabetes by Teenagers based on BMI.

## RESEARCH ASSISTANT

### The program includes:

- One orientation meeting
- Weekly meetings with Principal Investigator and Research Mentor
- Continuous grammar, style, and spelling revision.
- Access to academic databases
- Human Subjects research training (if appropriate)
- Professionally produced final presentation video on YouTube (optional)
- Additional 1-on-1 meetings if needed
- Research Approval support and submission
- Ethics committee/Institutional Review Board fees
- Data collection platform
- Academic journal submission support & fees
- Certificate of Completion
- Option to request a Recommendation Letter
- Alumni benefits & IRI community opportunities

"The experience I've gained from my time in the lab as an RA student is beyond anything I could have ever asked for. Not only do I have the chance to publish my own research about my chosen topic that I'm very much interested in, but I've also had the support of an established professor and graduate students throughout the entire process. Additionally, I've gained so many skills beyond the tasks of collecting data and writing a research paper. I've had the chance to view my peers' work and provide suggestions, read and discussed forthcoming research ideas, and been given valuable and innovative feedback on my own work. I'm forever grateful to this program for setting this opportunity for me to collaborate and build meaningful relationships with so many bright minds across the globe.

- Sanjana, 18, USA.



### Read some papers from one of our previous students [here](#).



### Timeline & Cost

- Applications are on a rolling basis.
- Students will typically participate in the program for a term. You will coordinate the meetings with your Mentor & PI based on your availability.
- Starting dates are once per month.
- USD 9050 per student per term which includes tuition, deposit, and enrollment fee. After 2 terms, you will only pay the enrollment fee of 550 USD.

## IRI'S DATA TO PUBLICATION

The main goal is for you to publish your paper based on your previous research.

### The Program

Have you competed in a science fair and done well? Did you do an original project for your extended essay or with your AP biology teacher? Are you aiming to publish your work in a peer-reviewed, archived, indexed, independent, international, journal? IRI can help with the IRI Data to Publication Program.



IRI's DTP program is built upon a foundation of previously gathered data, making it a requirement for informed decision-making and strategic development.

Take your academic development to the next level: publish your science. You can change the world, but only if you let them know what you've done. Tell the scientific community and selective universities that you have published a paper based on your original research.

But where should you publish it? What steps are required? Do you need co-authors? What about research ethics review?

IRI can help you navigate this tricky stage in your work. And it matters. Claiming publication based on publishing in a junior science journal or a private label journal can hurt your chances of admission to a selective university.

**By the end of the program you will have:**

  
Discussion

  
Publication



## IRI'S DATA TO PUBLICATION

### The program includes:

- One orientation meeting
- Weekly meetings with Principal Investigator and Research Mentor
- Continuous grammar, style, and spelling revision
- Access to academic databases
- Professionally produced final presentation video on YouTube (optional)
- Additional 1-on-1 meetings if needed
- Academic journal submission support & fees
- Certificate of Completion
- Option to request a Recommendation Letter
- Alumni benefits & IRI community opportunities

"I learned a lot. The communication with my RM and PI was really good. Learning from both sides was very helpful in creating and finalizing my work, as I was able to hear from someone younger and someone with a lot of experience. The best part of the lab meetings is when the PI tries to take a step back and let me present and ask questions, but he always stays at the end and asks himself a question."

- Ashvin, 16, USA.

### Read some papers from one of our previous students [here](#).



*Journal of Advances in Medicine and Medical Research*

**34(23): 427-436, 2022; Article no. JAMMR.94233**

ISSN: 2455-8999  
(Past name: British Journal of Medicine and Medical Research, Past ISSN: 2231-0614, NLM ID: 101570965)

#### **HANDLINK: A Dexterous Robotic Hand Exoskeleton controlled by Motor Imagery (MI)**

**Ashvin Arora<sup>a</sup> and Robert Malkin<sup>b\*</sup>**

<sup>a</sup> International Research Institute of North Carolina, USA.

### Timeline & Cost



Applications are on a rolling basis.



Students will typically participate in the program for one term. You will coordinate the meetings with your Mentor & PI based on your availability.



Starting dates are once per month.



USD 9050 per student per term which includes tuition, deposit, and enrollment fee.



## SECTION 3 O U R F A C U L T Y

At IRI you will work with a principal investigator, not just a graduate student. They have years of research and mentorship, experience that will deepen your research experience.



# OUR FACULTY



## Robert Malkin, PhD

*PhD in Electrical Engineering from Duke University*

Areas of Research: Biomedical Engineering, Electrical Engineering, Global Health

Available Projects: Impact of medical equipment on human health. Assessing user attitudes towards healthcare technology new. Medical equipment in resource poor settings.

**Supports Intro Med, Intro Res, RA-Original Research, RA-Existing Data**



## Anna M Brown, MD, MPhil

*MD from Duke University School of Medicine, MPhil in Oncology from the University of Cambridge*

Area of Research: Radiation Oncology

Available Project: Racial differences in cancer treatment and outcomes. Review articles on cancer topics of interest.

**Supports RA-Existing Data**



## Dr. Daniel Rodriguez

*PhD from University of Maryland*

Areas of Research: Epidemiology, Substance Abuse

Available Projects: Public health and epidemiology, psychology related to substance abuse, smoking or vaping

**Supports RA-Existing Data**



## Jill Zeilstra-Ryalls, PhD

*PhD from Purdue University in Biochemistry*

Areas of Research: Biochemistry, Genetic Engineering, Public Health

Available Projects: Mitochondrial biology, bacteria and of environmental pollutants, bacteria and cancer

**Supports RA-Existing Data**



## Diane DellaValle, PhD

*PhD in Human Nutrition from Cornell University*

Areas of Research: Sports Nutrition, Nutrition and Dietetics

Available Projects: Dietary intake and assessment of iron, prebiotics, probiotics; eating attitudes and behaviors; improving iron status of athletes, effects of biofortified foods in resource-poor settings.

**Supports RA-Existing Data**



# OUR FACULTY



## Tim Antonelli, PhD

*PhD in Biomathematics from North Carolina State University*

Areas of Research: Biomathematics, Statistics, Genetic Engineering and Society

Available Projects: Understanding the spread of a virus in a previously unexposed population, Mathematical epidemiology in heterogeneous environments, Population genetics and dynamics of gene drives.

**Supports RA-Original Research**



## Lindsay Tallon, PhD

*PhD in Population Health, Northeastern University*

Areas of Research: Public Health, Global Health, Epidemiology, Climate Science and Emergency Response

Available Projects: Environmental health, climate change, Emergency preparedness

**Supports RA-Existing Data**



## David Segal, PhD

*Post-doctoral, Neurology, HIV Virology Lab, U Miami School of Medicine*

*PhD, Biochemistry & Molecular Biology, USF College of Medicine*

Areas of Research: Genetics, Virology, Microbiome

Available Projects: Genetic approach to public health problems: COVID comorbidities, STIs, nutrition, obesity, drug abuse. Microbiome: bacterial genetics and diagnostics.

**Supports RA-Existing Data**



## Lindsey Romick, PhD

*PhD in Chemistry from the University of Miami*

Areas of Research: Metabolism, Nutrition

Available Projects: Metabolic disorders, including those of genetic origin, from benchtop to clinical.

**Supports RA-Existing Data**



## Dr. Lars English

*PhD from Cornell University*

Area of Research: Solid State Physics

Available Projects: Electrical, non-linear lattice structures, Spontaneous pattern generation of energy, Spatial localization of energy in extended lattices, Soliton (quantum quasi-particle) formation

**Supports RA-Original Research**



# OUR FACULTY



**Joe Adserias-Garriga, DDS., PhD.**

*Mercyhurst University*

Areas of Research: Osteology, Forensic Anthropology, Forensic Odontology

Available Projects: Trauma, age and sex estimation from skeletal remains, identification from skeletal remains

**Supports RA-Existing Data**



**Dr. Hua Tan, PhD**

*PhD in Mechanical Engineering, University of Wisconsin*

Area of Research: Microfluidics, fluid dynamics, polymer composites, modeling and simulation

Available Projects: Measurement of contact angle, microfluidic design and fabrication, droplet analysis

**Supports RA – Existing Data**



**Dr. David Hunt, PhD**

*PhD in Organic Chemistry, Duke University*

Areas of Research: Biologically active compound design and drug discovery

Available Projects: Organic scaffolding for pharmaceuticals, synthetic methods for privileged scaffolds

**Supports RA – Existing Data**



**Dr. Daniel Jaffe, PhD**

*PhD, USC Biokinesiology*

Areas of Research: Biomechanics, Neuromechanics, Rehabilitation Science

Available Projects: Patient engagement in prosthetics and post-amputation rehabilitation, Gender and socio-economic factors in post-amputation outcomes

**Supports RA – Existing Data**



**Dr. Nagarjun Konduru, DVM, PhD**

*Post Doc: Harvard Public Health, Harvard-MIT Health Sci and Tech*

Areas of Research: Inhalation toxicology

Available Projects: Nanomedicine, environmental toxicology and climate change; biomarkers of cancer, climate change and cognitive function

**Supports RA – Existing Data**



**SECTION 4  
RECAP &  
APPLICATION**

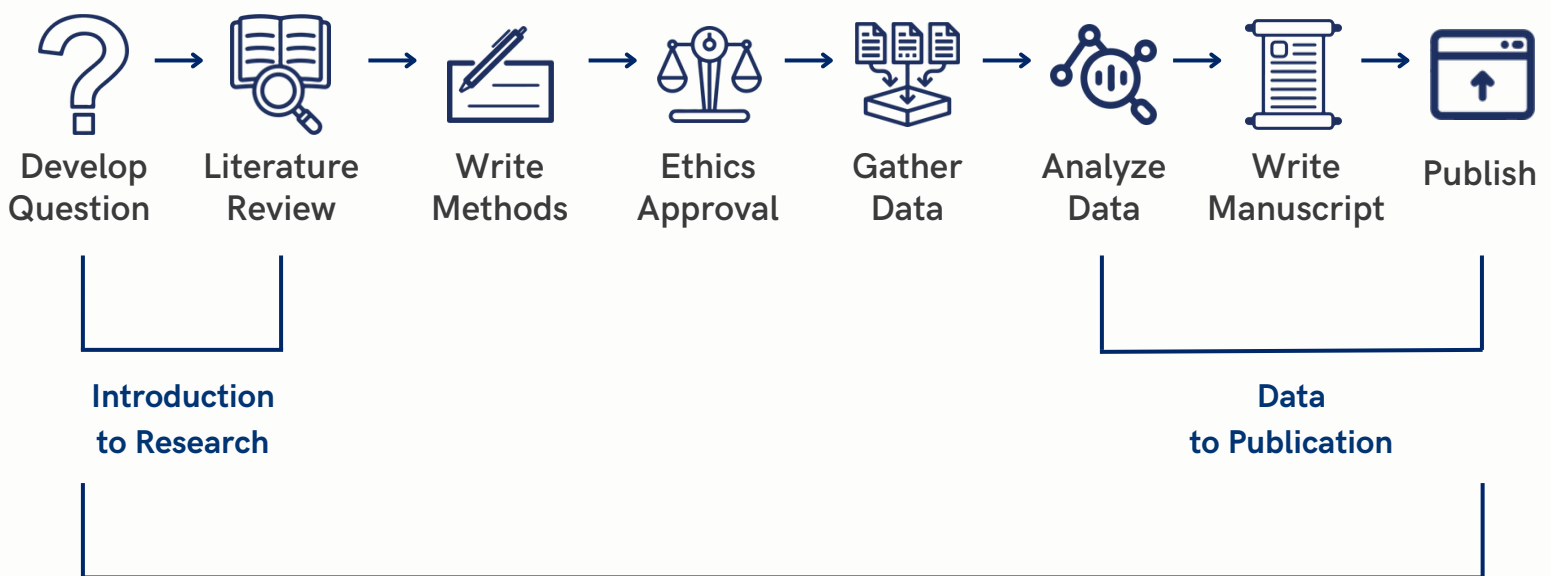
## PROGRAM COMPARISON

RESEARCH ASSISTANT	DATA TO PUBLICATION	INTRO TO RESEARCH		
		INDIVIDUAL	EXPRESS	GROUP
1-2 years	4 months	2 months	1 month	2 months
Individual program	Individual program	Individual program	Individual program	3 - 5 students
Goal: Publish a peer reviewed paper	Goal: Publish a peer reviewed paper using previous data	Goal: Produce a Literature Review	Goal: Produce a Literature Review	Goal: Produce a Literature Review
PI will oversee the research directly	PI will oversee the research directly	PI will oversee the research & join some sessions	PI will oversee the research & join some sessions	PI will oversee the research & join some sessions
Weekly meeting with Principal Investigator	Weekly meeting with Principal Investigator	Weekly meeting with Research Mentor	2 Weekly meeting with Research Mentor	Weekly meeting with Research Mentor
Starting Date: Monthly	Starting Date: Monthly	Starting Dates: Semi-monthly	Starting Dates: Semi-monthly	Starting Date: Summer
\$9050	\$9050	\$3450	\$3450	\$995

**All prices are in US dollars.**

Admissions are rolling; students are encouraged to apply early; spots are limited; prices include tuition, non-refundable deposit and enrollment fees; most RA students take multiple terms; RA students pay no more than two trimesters of tuition, after two trimesters RA students only pay the enrollment fee of 550USD

## PROGRAM COMPARISON: RESEARCH TIMELINE



### Research Assistant Program

We are committed in supporting students at every stage of their academic journey. From early research ideation to project execution and publication, IRI provides comprehensive support and resources.

Through mentorship, and opportunities for collaboration, IRI ensures that students receive the guidance and assistance they need to thrive at every step of their research endeavors. We believe that empowering students with the right resources and guidance is fundamental to fostering a vibrant and innovative research community.



## APPLICATION PROCESS



[Apply Here](#)

We recommend applying 45 days before starting the Introduction to Research program and at least 90 days before starting the Research Assistant program

Let us know if you need anything!



**Robert Malkin**  
Academic Director  
Robert.malkin@iri-nc.org



**Angela Parra**  
Director  
Angela.parra@iri-nc.org



**Alliah Rebancos**  
Sales and Marketing  
Coordinator  
alliah.rebancos@iri-nc.org



**Maria Figueroa**  
Operations Coordinator  
maria.figueroa@iri-nc.org