



INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

Students with university faculty researching remotely





OUR DNA

IRI fosters impactful research experiences for students worldwide. Students work with top university faculty, not solely graduate students, and contribute to groundbreaking research projects—all from the comfort of their home.



INTERNATIONAL
RESEARCH INSTITUTE
OF NORTH CAROLINA

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 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 or application, 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.



Guidance and Support

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, archived, impact-factor rated 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!

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

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 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.



CHOOSING IRI

IRI IS DEFINITELY FOR YOU IF



You are a teenage student (ages 14-19) or a recent high school graduate, a college student looking to go to graduate or professional school.



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 only research programs that connect you directly with a top-tier university faculty!





OUR STUDENTS

We embrace diversity and inclusion in all aspects of our operations.



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SANJANA ANAND
USA | RA PROGRAM

Research Topic:
The Effect of Vaping and Nicotine-containing
Liquids to Suppress the Immune System: A Pilot Study

"I didn't know if I could actually publish a paper when I first joined. It's amazing to see how this has turned out. I loved working with Dr. Malkin. He was more than a mentor to me. It's beyond imaginable to be able to work with him and get support from him. I want to have that same community feeling in my Uni as I have here. Everyone has been incredibly supportive. There is so much work behind the scene".

IRI in one word: Fulfilling



ARIANA BUDHIHARTANTO
INDONESIA | INTRO PROGRAM

Research Topic:
Is nanomedicine more effective than traditional
antibiotics at reducing Tuberculosis rates in Indonesia?

"It was an incredibly educational program, better than anything I have experienced in school. The program was distinct and unique. I must emphasize the significant role the Research Mentor played throughout the process, as her guidance and support were instrumental to my success. Overall, it was a great learning opportunity that exceeded my expectations."

IRI in one word: Eye-Opening



XINYUE LUCY WANG
CANADA | INTRO PROGRAM

Research Topic:
Physical and Behavioral Responses to Food Stimuli:
A Comparison Between Anorexia Nervosa Patients
and Health-Controlled Women

"It was a creative program that allowed me to broaden my knowledge significantly. I particularly enjoyed the first half, as it challenged me to deeply comprehend the subject matter and effectively convey it to others in a relatable manner. The experience enhanced my communication skills and expanded my understanding of the topic. I am grateful for the opportunity to grow through this unique program."

IRI in one word: Creative



JUN YOUNG CHUN
KOREA | INTRO PROGRAM

Research Topic:
Will Granting Rights to Avatars Affect Crime Rates
Among Metaverse Users?

"It was a really good experience. It's difficult to find this kind of opportunity elsewhere. It's a new and valuable experience for me to work with a professor and a mentor. Research has proven to be even more enjoyable and interesting than I initially thought."

IRI in one word: Productive

RECENTS PUBLICATIONS FROM OUR STUDENTS

IRI students are making waves in the world of academic publishing!
This means IRI alumni have peer-reviewed publications across various academic fields,
showcasing their research contributions and taking their academic careers to the next level.

SANJANA ANAND | RA PROGRAM



Journal of Advances in Medicine and Medical Research

33(23): 284-291, 2021; Article no.JAMMR.80013
ISSN: 2456-8899
(Past name: British Journal of Medicine and Medical Research, Past ISSN: 2231-0614,
NLM ID: 101570965)

The Effect of Vaping and Nicotine-containing Liquids to Suppress the Immune System: A Pilot Study

Sanjana Anand ^a, Madeline Wilkerson ^b and Robert Malkin ^{b*}

^a International Research Institute of North Carolina, United States.
^b Duke University, United States.

KHALID TALEB | RA PROGRAM

RAS MEDICAL SCIENCE

ISSN : 2766-5340

Review Article: Systemic therapy use for the treatment of meningioma: A systematic review



Issue Type: Volume 3 Issue 1

Author Name:
Khalid Taleb, MB BCh¹, Anna M Brown, MD, MPhil²

¹International Research Institute of North Carolina, Durham, NC

ABSTRACT

Purpose: Meningiomas are the most common primary central nervous system tumor. Many studies have investigated systemic therapy agents for treating meningiomas, but no study has systematically evaluated these agents in a comparative or comprehensive manner. Our goal was to investigate the recent systemic therapy agents used to treat meningioma and to compare outcomes such as progression-free survival and overall survival.

EESHTA BHATT | RA PROGRAM

Journal of Asthma and Allergy

Dovepress

open access to scientific and medical research

Open Access Full Text Article

ORIGINAL RESEARCH

Errors in Metered Dose Inhaler Use Amongst Pediatric Asthma Patients

Eeshta Bhatt , Robert A Malkin 

Pratt School of Engineering, Duke University, Durham, NC, USA



Also presented at Annual Society of Neuro-Oncology,
November 2022, Tampa Florida.



OUR PROGRAMS

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



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INTRODUCTION TO RESEARCH

Launch your journey into research with expert guidance!



CHOOSE YOUR INTRO TO RESEARCH PATH

Introduction to Research - Literature Review

- Learn the fundamentals of research: Question identification and literature review.
- Choose your own subject/research question.
- Develop critical thinking and writing skills through a comprehensive literature review project.
- Have an academic presentation for your findings.
- Gain broad exposure to the scientific process, regardless of your background.
- Option for Intro Group Program.
- Open to all high school and gap year students, and early college students.
- 4 - 8 weeks long.

Introduction to Research - Medical Case Study

- Complete a collected case study, a common format in early medical research.
- Deepen your understanding of medical practice and research methodology.
- Strengthen your application for medical school, pharmacy school, or nursing programs.
- Present your findings at mock grand rounds.
- Open to all high school students who have completed two science courses (biology + physics or chemistry) and college students who have completed one science course.
- 8 weeks long.



RESEARCH ASSISTANT PROGRAMS

*Conduct cutting-edge research under the guidance
of leading US university faculty.*



CHOOSE YOUR RESEARCH ASSISTANT PATH

Research Assistant – Original Research

- Design and conduct your own research project, culminating in a peer-reviewed publication.
- Gain comprehensive research experience: Question identification, literature review, methodology, data collection, analysis, and publication.
- Open to all high school students and college students, but highly competitive due to limited spots. Requires strong application materials and successful lab match.
- 2-3 years long.

Research Assistant – Existing Data

- Analyze existing data sets and contribute to ongoing research, culminating in a peer-reviewed publication.
- Develop data analysis skills and contribute to real-world research publications.
- Open to high school students with a strong science background and college students, but highly competitive due to limited spots. Requires strong application materials and successful lab match.
- 1 year long.



OUR FACULTY

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.



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Dr. 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 Lit, RA-Original Research, RA-Existing Data



Dr. 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

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



Dr. Jill Zeilstra-Ryalls, PhD

PhD from Purdue University in Biochemistry

Area of Research: Biochemistry, Genetic Engineering, Public Health

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

Supports RA-Existing Data



Dr. 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



Dr. Tim Antonelli, PhD

PhD in Biomathematics from North Carolina State University

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

Available Project: 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



Dr. 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



Dr. David Segal, PhD

Post-doctoral, Neurology, HIV Virology Lab, U Miami School of Medicine PhD, Biochemistry & Molecular Biology, USF College of Medicine

Area of Research: Genetics, Virology, Microbiome

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

Supports RA-Existing Data



Dr. Lars English, PhD

PhD from Cornell University

Areas 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



Dr. Daniel Jaffe, PhD

PhD, USC Biokinesiology

Area of Research: Biomechanics, Neuromechanics, Rehabilitation Science

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

Supports RA-Existing Data



Dr. Hua Tan, PhD

PhD in Mechanical Engineering, University of Wisconsin

Areas of Research: 3D printing, computational fluid dynamics, micro-fluidics

Available Projects: Advanced 3D printing, including microfluidic design and fabrication, and droplet analysis

Supports RA-Existing Data



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

Mercyhurst University

Area of Research: Osteology, Forensic Anthropology, Forensic Odontology

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

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. Nagarjun Konduru, DVM, PhD

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

Area of Research: Inhalation toxicology

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

Supports RA-Existing Data



Dr. Ashanthi Maxworth, PhD

PhD in Electrical Engineering, University of Colorado

Areas of Research: The ionosphere: Climate change, satellites, and space weather

Available Projects: Analysis of equatorial ionosphere for changes related to climate change, atmospheric disturbances, CO2 and other phenomena

Supports RA-Existing Data



Dr. Ethan MacDonald, PhD

PhD in Biomedical Engineering, University of Calgary

Area of Research: Artificial Intelligence, Machine Learning, Medical Imaging

Available Project: BBrain-age gap estimation, Neuroscience, Cognitive decline

Supports RA-Existing Data



Dr. Joyce Dogba, PhD

Ph.D. in Public Health, University of Montreal

Areas of Research: Public Health

Available Projects: Diabetes and behavior, marginalized populations, health promotion

**Supports RA – Existing Data,
RA- Original Data**



Dr. Sachin Katyal, PhD

PhD in Oncology, University of Alberta

Area of Research: Cancer, Multi-omics, translational research

Available Project: Data science analysis of patients with and without cancer, patient databases, proteomics

Supports RA-Existing Data

RECAP & APPLICATION



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PROGRAM COMPARISON

INTRODUCTION TO RESEARCH	INTRO - LIT	4 - 8 weeks	PI will oversee the research & join some sessions	Weekly meeting with Research Mentor	Goal: Write and present literature review	\$3750
	INTRO - LIT GROUP	8 weeks	PI will oversee the research & join some sessions	Weekly meeting with Research Mentor every Thursday morning	Goal: Write and present case study review	\$995
	INTRO - MED	8 weeks	PI will oversee the research & join some sessions	Weekly meeting with Research Mentor	Goal: Write and present case study review	\$3750
RESEARCH ASSISTANT	RA - ORIGINAL RESEARCH	2 - 3 years	PI will oversee the research directly	Weekly meeting with Principal Investigator	Goal: Publish a peer reviewed paper	\$9950
	RA - EXISTING DATA	1 year	PI will oversee the research directly	Weekly meeting with Principal Investigator	Goal: Publish a peer reviewed paper	\$9950

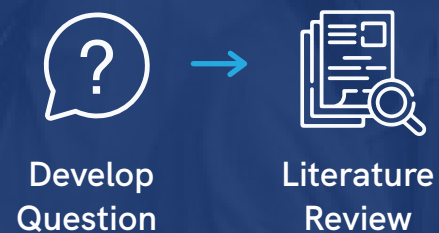
NOTE: Intro-Group starting in June meets every Tuesday at 9AM EST; Intro-Group starting in July meets every Thursday at 9AM EST

PROGRAM COMPARISON: RESEARCH TIMELINE

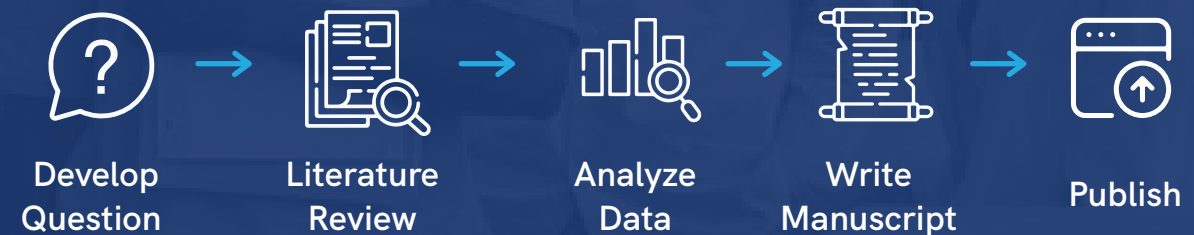
Research Assistant - Original Data Program



Introductory Programs



Research Assistant - Existing Data Program



APPLICATION PROCESS



[APPLY HERE](#)

Let us know if you need anything!



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Angela Parra

Director

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Cherrydyn Miguel

Operations Manager

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