# INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

Students with university faculty researching remotely

2027

# 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

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*

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# 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.

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA



# 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 Introduction to Research courset 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.

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# 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.

INTERNATIONAL
RESEARCH INSTITUTE
OF NORTH CAROLINA



## SANJANA ANAND

USA | RESEARCH ASSISTANT - ORIGINAL DATA

**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 | INTRODUCTION TO RESEARCH LITERATURE

**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 | INTRODUCTION TO RESEARCH LITERATURE

**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 | INTRODUCTION TO RESEARCH LITERATURE

**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***

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# PUBLICATIONS

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 : 2766-5240

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



Issue Type: Volume 3 Issue 1

**Author Name:**
Khalid Taleb, MB BCh[1] , Anna M Brown, MD, MPhil[1]

[1]International 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

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

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# CONFERENCE PRESENTATIONS

IRI students also bring their research to life through conference presentations, sharing their findings with academic audiences, and gaining valuable experience on national and international stages.

## KHALID TALEB

*RA Program*

**Kuwait International Family Medicine Conference**

2023 Kuwait

**Annual Society of Neuro-Oncology**

2022 USA

## SAMIKSHA PRABHU

*RA Program*

**British Society for Population Studies Annual Conference**

2024 UK

## ASHLEY BECKER

*RA Program*

**Society of Behavioral Medicine Conference**

2025 USA



# 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.

INTERNATIONAL
RESEARCH INSTITUTE
OF NORTH CAROLINA

INTERNATIONAL
RESEARCH INSTITUTE
OF NORTH CAROLINA



# FIND YOUR PASSION PROGRAM

*Determine if research is for you and find a topic you are passionate about.*

- Explore your interests and begin identifying possible areas of research.
- Learn how to construct a strong research question.
- Draft, review, and finalize a strong research question based on feedback.
- Draft possible research themes and discuss the next steps
  (whether it be our research programs, essay competitions, or conference submission).
- Open to all high school through early college students.
- 3 weeks long.

\

INTERNATIONAL
RESEARCH INSTITUTE
OF NORTH CAROLINA



# INTRODUCTION TO RESEARCH PROGRAMS

*Launch your journey into research with expert guidance.*

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# CHOOSE YOUR PATH

## Introduction to Research Literature

- 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 Medical Case Studies

- 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.

INTERNATIONAL
RESEARCH INSTITUTE
OF NORTH CAROLINA



# RESEARCH ASSISTANT PROGRAMS

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

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# CHOOSE YOUR PATH

## Research Assistant – Original Data

- 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.

## Research Assistant - Publication Preparation

- Transform your existing research, culminating in a peer-reviewed publication.
- Polish your research question, organize your findings and write a full scientific manuscript ready for publishing.
- Open to all high school, gap year, and early college students who have completed a substantial amount of research such as an introductory research program with IRI or another organization. Exsting work must be reviewed prior to admission.
- 9 months long.

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# UNLIMITED SESSIONS, UNLIMITED TIME

## Research takes time.

No one can guarantee that you can get something done - that no one has done before - in a fixed amount of time. And, at IRI we know that too. If you join the Research Assistant program, we will support you as long as it takes to get your work published in a peer-reviewed, rated journal. **There is no limit on the number of sessions and no limit on the amount of time for the Research Assistant programs.**



# OUR FACULTY

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

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA



## 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 all programs**



## 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 Research Assistant - 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 Research Assistant - Existing Data**



## Dr. Jill Zeilstra-Ryalls, PhD

*PhD in Biochemistry from Purdue University*

**Areas of Research:** Biochemistry, Genetic Engineering, Public Health

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

**Supports Research Assistant - Existing Data**

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA



## 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 Research Assistant - Existing Data**



## Dr. Tim Antonelli, PhD

*PhD in Biomathematics from North Carolina State University*

**Areas 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 Research Assistant - Original Data**



## Dr. Lindsay Tallon, PhD

*PhD in Population Health from Northeastern University*

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

**Available Projects:** Environmental health, climate change, Emergency preparedness

**Supports Research Assistant - 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*

**Areas 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 Research Assistant - Existing Data**

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA



## 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 Research Assistant - Original Data**



## Dr. Daniel Jaffe, PhD

*PhD in Biokinesiologi from University of Southern California*

**Areas 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 Research Assistant - Existing Data**



## Dr. Hua Tan, PhD

*PhD in Mechanical Engineering from 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, Particle physics, High speed imaging

**Supports Introduction to Research Literature and Research Assistant - Existing Data**



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

*Mercyhurst University*

**Areas of Research:** Osteology, Forensic Anthropology, Forensic Odontology

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

**Supports Research Assistant - Existing Data**

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA



## Dr. David Hunt, PhD

*PhD in Organic Chemistry from Duke University*

**Areas of Research:** Biologically active compound design and drug discovery

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

**Supports Introduction to Research Literature and Research Assistant - Existing Data**



## Dr. Ethan MacDonald, PhD

*PhD in Biomedical Engineering from University of Calgary*

**Areas of Research:** Artificial Intelligence, Machine Learning, Medical Imaging

**Available Project:** Brain-age gap estimation, Neuroscience, Cognitive decline

**Supports Research Assistant - Existing Data**



## Dr. Ashanthi Maxworth, PhD

*PhD in Electrical Engineering from 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 Research Assistant - Existing Data**



## Dr. Joyce Dogba, PhD

*PhD in Public Health from University of Montreal*

**Areas of Research:** Public Health

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

**Supports Research Assistant - Original Data and Research Assistant - Existing Data**

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA



## Dr. Sachin Katyal, PhD

*PhD in Oncology from University of Alberta*

**Areas of Research:** Cancer, Multi-omics, translational research

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

**Supports Research Assistant - Existing Data**



## Dr. Laricca London, PhD

*PhD in Microbiology from Howard University*

**Areas of Research:** Biology, Microbiology, The Environment

**Available Project:** Food safety, Anti-microbial resistance, essential oils, Genomic annotation for novel phages

**Supports Introduction to Research Literature and Research Assistant - Existing Data**



## Dr. Debarshi Roy, PhD

*PhD in Pathobiology from University of Texas at El Paso*

**Areas of Research:** Oncology, Health Disparities

**Available Projects:** Probiotics and colorectal cancer, health disparities in cancer, drug resistant cancer genomics and proteomics

**Supports Research Assistant - Existing Data**



## Dr. Cheryl Gomillion, PhD

*PhD in Bioengineering from Clemson University*

**Areas of Research:** Public Health

**Available Projects:** Mechanobiology in breast cancer, Extracellular vesicles and breast cancer, Engineered adipose tissue and chronic disease

**Supports Introduction to Research Literature and Research Assistant - Existing Data**

INTERNATIONAL
RESEARCH INSTITUTE
OF NORTH CAROLINA



## Dr. Anne Zachry, PhD

*PhD in Educational Psychology & Research from University of Memphis*

**Areas of Research:** Pediatric Occupational Therapy

**Available Project:** Infant and early childhood development, pediatric neurodevelopmental and neurological disorders, infant development, tummy time, and baby gear use.

**Supports Introduction to Research Literature, Introduction to Medical Case Studies, Research Assistant - Original Data, Research Assistant - Existing Data**



## Dr. John Stephen Malamon, PhD

*PhD in Biomedical Engineering, Drexel University*

**Areas of Research:** Biostatistics and Biomedical Engineering

**Available Project:** Bioinformatics, Clinical Informatics, Computer Engineering

**Supports Introduction to Research Literature, Research Assistant - Original Data, Research Assistant - Existing Data**

# RECAP & APPLICATION

INTERNATIONAL
RESEARCH INSTITUTE
OF NORTH CAROLINA

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# PROGRAM COMPARISON

| | | DURATION | MENTORSHIP | MEETINGS | GOAL | TUITION FEE |
|---|---|---|---|---|---|---|
| | **FIND YOUR PASSION** | 3 weeks | PI will oversee the exploration and join some sessions | Weekly meeting with Research Mentor | Finalize a compelling research question | **$1160** |
| **INTRODUCTION TO RESEARCH** | **INTRODUCTION TO RESEARCH LITERATURE** | 4 - 8 weeks | PI will oversee the research & join some sessions | Weekly meeting with Research Mentor | Write and present literature review | **$3,360** |
| | **INTRODUCTION TO RESEARCH LITERATURE, GROUP** | 8 weeks | PI will oversee the research & join some sessions | Weekly meeting with Research Mentor every Thursday morning | Write and present case study review | **$405** |
| | **INTRODUCTION TO MEDICAL CASE STUDIES** | 8 weeks | PI will oversee the research & join some sessions | Weekly meeting with Research Mentor | Write and present case study review | **$3,360** |
| **RESEARCH ASSISTANT** | **RESEARCH ASSISTANT - ORIGINAL DATA** | Unlimited sessions & time (Average 2-3 years) | PI will oversee the research directly | Weekly meeting with Principal Investigator | Publish a peer reviewed paper | **$19,900** |
| | **RESEARCH ASSISTANT - EXISTING DATA** | Unlimited sessions & time (Average 1 year) | PI will oversee the research directly | Weekly meeting with Principal Investigator | Publish a peer reviewed paper | **$19,900** |
| | **RESEARCH ASSISTANT - PUBLICATION PREPARATION** | Unlimited sessions & time (Average 9 months) | PI will oversee the research directly | Weekly meeting with Principal Investigator | Publish a peer reviewed paper | **$9,950** |

**NOTE:** Starting dates nearly every week of the year.
Intro-Group starting in July meets every Thursday at 9AM EDT; Intro-Group starting in August meets every Thursday at 9AM EDT
Tuition does not include $590 enrollment fee, due every 16-week term of the program until completion.

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# PROGRAM COMPARISON: RESEARCH TIMELINE

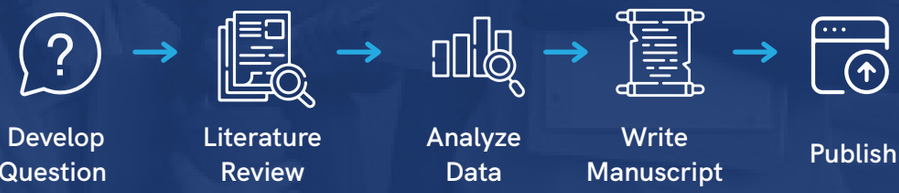
## Research Assistant – Original Data



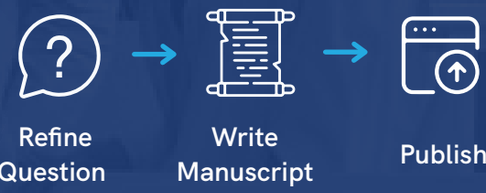

## Introduction to Research




## Research Assistant - Existing Data




## Research Assistant - Publication Preparation



INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# APPLICATION PROCESS

1 Fill out the online form

2 Receive the link to plan your interview

3 Interview with Operations Manager

4 Interview with Faculty (if needed)

5 Get your Acceptance Letter

6 Start your program!



APPLY HERE

INTERNATIONAL RESEARCH INSTITUTE OF NORTH CAROLINA

# Let us know if you need anything!




## Robert Malkin

Executive Director

*robert.malkin@iri-nc.org*





## Cherrydyn Miguel

Operations Manager

*cherrydyn.miguel@iri-nc.org*