

Institutional Research and Academic Career Development Awards (IRACDA)

Postdoctoral Research, Instruction and Mentoring Experience (PRIME)

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Challenges to Research and Teaching as an Academic Career

Postdoctoral Training programs:

1. Research 100%
2. mentored teaching opportunities ??%

This leaves many highly trained researchers with a void in their academic experience even if they participated as teaching assistants as predoctoral trainees.

Institutional Research and Academic Career Development Awards (IRACDA)

Postdoctoral Training program embraces:

1. Research 75%
2. mentored teaching opportunities 25%

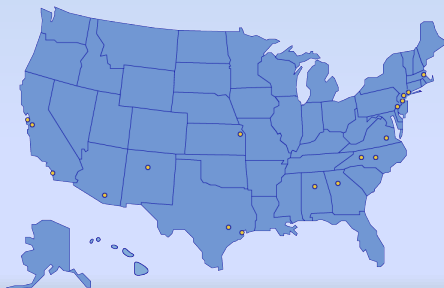
- NIGMS K12 program
- Consortia between a Research Intensive and an under-represented minority-serving Teaching Mission institution

Institutional Research and Academic Career Development Awards (IRACDA)

Expected Outcomes:

- Postdoctoral scholars: **success in research and teaching careers in academia**
- Partner institutions: **highly motivated young scientists**
- Research Intensive and partner institutions: **collaborations in research and teaching**

IRACDA: 18 Participating Programs in 2015








IRACDA NY-CAPS Program

New York Consortium for the Advancement of Postdoctoral Scholars

- **Primary Objective:**
- “To implement a **blended research and teaching** postdoctoral training model that provides comprehensive preparation for postdoctoral scholars interested in pursuing a **faculty career**.”



NY-CAPS: Partner Institutions

- Stony Brook University (Research Intensive Institution)  
 - CUNY Brooklyn College (comprehensive) 
 - SUNY College at Old Westbury (primarily undergraduate) 
 - Suffolk County Community College (2-yr community college) 
- All sectors of higher education settings
➤ Full range of faculty career pathways

IRACDA NY-CAPS: Major Components

- ✓ **Research Training**
 - External Scientific Meetings/Trainings
 - Local lab meetings, journal clubs
- ✓ **Pedagogy Course**
 - Curriculum development
 - Teaching Statement/Philosophy
 - Learning styles, Teaching strategies
 - Technology and web tools
 - Communicating Science
 - Culmination: Microteaching seminar
- ✓ **Professional Development Workshops**
 - Topic Based Lunch with Senior Leadership
 - Faculty Career Weeks
 - Practical Professional Skills
 - Conflict Resolution
 - Grantsmanship
 - Communicating Science



IRACDA Program (SPIRE)

University of North Carolina/Chapel Hill

Recruit diverse scholars that compliment the mission of NIGMS and the needs of our four partner campuses

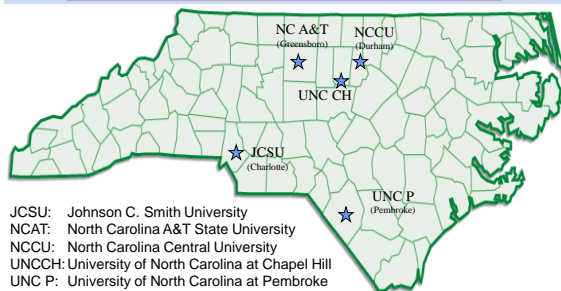
Provide research training for scholars and undergraduate students

Provide a mentored teaching experience

Provide training in professional skills to promote success in future academic positions



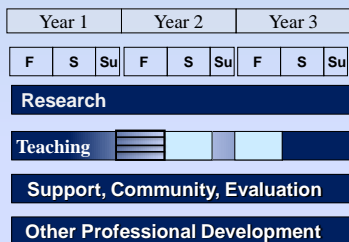
SPIRE Program Partnership



JCSU: Johnson C. Smith University
 NCAT: North Carolina A&T State University
 NCCU: North Carolina Central University
 UNCCH: University of North Carolina at Chapel Hill
 UNCP: University of North Carolina at Pembroke



SPIRE Program Timeline



 Teaching Preparation
 2 semesters teaching



SPIRE Outcomes

- 87 past and current scholars (2000-present)
 - 36% URM status (race/ethnicity/disability)
 - 68% Females
- 183 Courses taught, 3,000 students served
- 300 Students mentored in research
- Employment
 - 89% secured positions at educational institutions
 - 63% currently tenured, TT, or academic faculty
 - 12% at partner institutions



Medical & Health Professions Schools face a challenge:

- 1) health-professions schools teach compressed basic sciences in a clinical context,
 - 2) teaching methods beyond lectures in contemporary curricula,
 - 3) diverse student backgrounds in health professions schools,
 - 4) research is translational and collaboration involves clinical applications.
- YET, Few PhD students take classes along with health-professions students to experience these changes.**

Medical & Health Professions Schools face a challenge:

How do we prepare our biomedical sciences trainees to serve as educator-researchers in the medical/allied health professions?

The Postdoctoral Research, Instruction, and Mentoring Experience (PRIME) training program



PRIME program goals:
to develop highly-skilled biomedical scientists to teach the next generation of clinical researchers and medical/allied health professionals

The Postdoctoral Research, Instruction, and Mentoring Experience (PRIME) training program



PRIME program goals:
to increase the numbers of academic researchers from under-represented minorities (URM) in the medical and allied health professions;

The Postdoctoral Research, Instruction, and Mentoring Experience (PRIME) training program



PRIME program goals:
to train postdoctoral scholars to utilize innovative methods that enhance the learning environment and support the career development of URM pre-professional and allied health professions students.

The Postdoctoral Research, Instruction, and Mentoring Experience (PRIME) training program



Implement PRIME goals via:

Mentored teaching opportunities that require our trainees to direct the scientific content specifically to the professional needs of the allied health audience.

Formal instruction in:

- educational philosophy and teaching methodology,
- techniques to promote active learning and clinical application of scientific principles,
- ethics and responsible conduct of research.

Hallmarks of the PRIME Program

1. Train scholars in research with a faculty member in a WFU Graduate School programs in Integrative Physiology and Pharmacology, Neuroscience, Cancer Biology, Molecular Genomics, Molecular Medicine & Translational Sciences, Immunol & Virology, Biochemistry & Molecular Biology and Biomedical Engineering.



Research Experience at WFSM, a Research Intensive Institution

- 75% effort in research, with 90% effort during the first six months.
- Participation in journal clubs and seminars
- Presentations at scientific meetings
- Publication of research in peer-reviewed journals



Research at Partner Institution Winston-Salem State University (WSSU)

WSSU Biomedical Research Infrastructure Center



Research Options are Expanded
Teaching mentors guide scholars in time management

Research at Partner Institution Winston-Salem State University (WSSU)

Research Options can interface with teaching activities

Human Performance and Biodynamics Laboratory
WSSU
Wale Forest School of Medicine

Research is:
Cross-disciplinary
Clinically oriented
Translational



Physical therapists, biomedical engineers, medical students, and orthopedic surgeons are all involved in the research activities.

Hallmarks of the PRIME Program

2. Train scholars in mentored teaching experiences at WSSU for the entire three year training, including tutoring, lecturing, laboratory design and development, guiding students through simulations, case-based learning (CBL), and open-source digital teaching tools.



Postdoctoral Research, Instruction and Mentoring Experience: PRIME

Experience in teaching for pre-doctoral and post-doctoral trainees in biomedical sciences

GRAD720 **Topics in College Level Teaching**

- Pre-professional Anatomy & Physiology
- Applied Physiology (Physical Therapy)
- Pharmacology (Physical Therapy)

Instructional Experience in a Clinical Discipline

- 25% effort in teaching, in 2-3 week blocks of time throughout the entire 3-year program.
- Participation in lectures, laboratories, demos
- Developing case-based learning and simulations
- Developing board-style examination questions



Instructional Experience in a Clinical Discipline

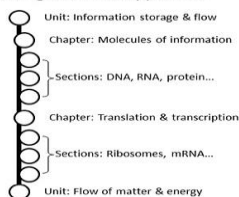


Case-based learning throughout the instruction is encouraged.

Simulation Hospital for teaching physiology principles

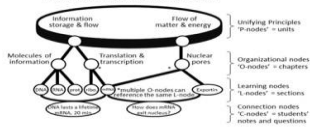
Traditional Textbook

reading order is set by publisher



Non-linear eText

reading order is personalized by student



The Adapa Project

Helping ALL students learn science successfully

DIGITAL TOOLS for eTEXTBOOK Non-linear Learning Modalities

Evaluation and adoption of BioBook Launch of the first evaluation module for ChemBook Expansion of The Adapa Project's toolset for developers, teachers, and students.

Supported by Arthur Vining Davis Foundation

<http://news.wfu.edu/2011/04/08/biobook-etest-evolved/>
<http://news.wfu.edu/2013/05/09/biobook-to-bring-new-generation-of-e-learning/>

Hallmarks of the PRIME Program

3. Introduce PRIME scholars to current pedagogical techniques and educational philosophy through a semester-long course, and short workshops from the WFU Teaching and Learning Center and others.



Training in Instructional Methods



BIO783 Instructional Methods for College Science

Participants use best-practices to design a course:
set general learning outcomes
and assessable performance goals,
delivered sessions from their course using a mix of
traditional didactic lecture and cases,
field exercises,
other active learning methods.

Participants evaluate their peers and provide feedback using a modified Reformed Teaching Observation Protocol.

Teaching and Learning Center

WFU TLC offers a **PORTFOLIO PROGRAM** in College Level Teaching

“Tools to Enhance Your Teaching” Workshops include

- Learning and Learner Centered Teaching
- Grading with Rubrics
- Using clickers to engage student learning
- Encouraging Student Reflections with Blogs
- Incorporating Writing While Minimizing the Grading Burden
- Preparing to Teach: Objectives through Assessment
- The Syllabus Reconsidered: Learning Tool NOT a Legal Contract!
- The First Class: Making it Count

<http://tlc.wfu.edu/resources-for/graduate-teaching-assistants/>

Join us for the
Teaching and Learning Center Spring Ahead Workshop Series
January 12 & 13, 2015, 8:30 – 3:00
[Biotech Place](#) (575 N Patterson Ave), Conference Room 155 A&B

Come to one or come to all!
Open to all TAs and Professors at Wake Forest



Monday, January 12		Tuesday, January 13	
8:30-9:00	Breakfast	Breakfast	
9:00-10:15	Set Up Your ePortfolio	Teaching Inclusively: Creating a Climate for Learning	
	Writing Effective Learning Objectives	Active Learning: Why and How to Incorporate Active Learning into the Classroom	
10:30-11:45	Syllabus Design	Writing a Teaching Philosophy	

TLC workshops can be taken for GRAD 711 and GRAD722 credit.

Hallmarks of the PRIME Program

4. Facilitate mentoring skills
by pairing PRIME scholars
with WFSM faculty to
oversee the research training
of WSSU MARC U*STAR
and MBRS-RISE
undergraduates, and PREP
post-bac students.



Mentoring Experiences

CHALLENGES:

- Time management in a teaching mission environment
 - Teaching deadlines dominate teaching time
 - 9-month teaching + 3-month Summer research
- Laboratory management using undergraduates and MS students as personnel
- Research limitations
 - Animal housing
 - Facilities support
 - Grants management



Mentoring Experiences

**NIGMS programs
for undergraduates**

MARC U*STAR

Maximizing Access
to Research Careers
for Undergraduate Student
Training in Academic
Research

MBRS-RISE:

Minority Biomedical Research
Support-Research Initiative
for Scientific Enhancement



Mentoring Experiences



**Translational Science Institute
Medical Student Summer Research Program**

**MS in Biomedical Sciences: Med Prep
MS Project to prepare for Medical School**

**Undergraduate Summer Programs
Excellence in Cardiovascular Research
Wake Forest Institute of Regenerative Medicine**

Hallmarks of the PRIME Program



5. Train PRIME scholars in translational research
practices and grant writing.

CHALLENGES:

- Collaborating faculty will be clinical professionals
- Laboratory management using students as personnel
- Research facilities may be in a clinical environment
- Yet, Bench science rarely provides opportunity for translational research

PRIME IRACDA Maya Angelou Center for Health Equities Summer Workshops

Workshop 1 IRP 711 (1 credit) Topics in Translational & Educational Research				
	Date	Time	Title	Speaker
1	June 5, 2014	8am-12pm	<ul style="list-style-type: none"> Getting Started with Translational Research Inter-professional Research 	Dr. Allison Nancy Smith
2	June 5, 2014	1pm-5pm	<ul style="list-style-type: none"> Conducting Clinical Trials: Getting your first study, Study Start-up and Study activities 	Vicky Davier
3	June 6, 2014	8am-12pm	<ul style="list-style-type: none"> Strategies for Research Success Collaborate or Perish Maximizing Mentor-Mentee Relationship Success strategies in Publication 	Allysa Houskirk Judy Foreworth, WOMI & WOSM Adjunct Osteopathic Ann Vincent, Journal Editor
4	June 6, 2014	1pm-5pm	<ul style="list-style-type: none"> Educational Research Methods Novel Educational Technologies 	Nancy Smith Dan Johnson & Nancy Smith

PRIME IRACDA Maya Angelou Center for Health Equities Summer Workshops

Workshop 2 CPES 768 (1 credit) Topics in Detecting and Understanding Health Disparities				
	Date	Time	Title	Speaker
5	June 19, 2014	8am-12pm	<ul style="list-style-type: none"> Defining health disparities and health equity Landmark reports on health disparities 	Rosary Bell, PhD
6	June 19, 2014	1pm-5pm	<ul style="list-style-type: none"> Measuring health disparities Disparities in T2DM and obesity 	Allan Rotman, MD Kristen Harrison, MD
7	June 20, 2014	8am-12pm	<ul style="list-style-type: none"> Determinants of health and health care disparities Determinants of social health disparities Determinants of health care system disparities 	Brenda Loftino-Sudler, MD Rosary Bell, PhD
8	June 20, 2014	1pm-5pm	<ul style="list-style-type: none"> Ethics in Research Innovation in Healthcare 	Nancy King, JD John Stewart, MD

PRIME IRACDA Maya Angelou Center for Health Equities Summer Workshops

Workshop 3 CPES 768 (1 credit) Topics in Promoting Health Equity				
	Date	Time	Title	Speaker
9	July 17, 2014	8am-12pm	<ul style="list-style-type: none"> Organizational and community points of interest to reduce health disparities, (introduce working in collaborations) 	Doag Easterling
10	July 17, 2014	1pm-5pm	<ul style="list-style-type: none"> Developing strategies for policy intervention to address health disparities (promote health equity) 	Mark Wolfson, Elin Sutfin, Kare Warren
11	July 18, 2014	8am-12pm	<ul style="list-style-type: none"> Research dissemination (involving faith community and community organizations & agencies) 	Melicia White-Glover, David Meant Scott Rhodes
12	July 18, 2014	1pm-5pm	<ul style="list-style-type: none"> Service Learning Courses Incorporating research/service into the classroom 	Allysa Houskirk Amal Ahsan

Hallmarks of the PRIME Program



6. Train PRIME scholars to become leaders in Responsible Conduct of Research (RCR) education programs.

CHALLENGES:

- Laboratory student personnel need RCR training
- Federal funding requires an ongoing RCR training program
- Department faculty may be clinical, not researchers

Problem-based learning curriculum in Scientific Integrity

GRAD713-714

Faculty member plus a Postdoc trainee co-facilitate a group (6-8) year-1 graduate students

- Cases presented one week; expert speaker introduces topic
- Students investigate issues and discuss on a second week
- Cases address all required components for NIH-trainees

PRIME Scholars are working with other postdocs having clinical degrees to build new Cases directed at clinical and translational research ethics.

Cases will be incorporated for training of pre-med undergraduates, and post-bac and MS medical sciences students at both institutions.

Professional Development Leadership Activities

WFU Postdoctoral Association: President, Secretary
National Postdoctoral Association
NC Academy of Sciences: Poster Presentation Judges, Organizers
Regional Scientific Societies: Meeting organizer

Textbook Production: SmartWork Author (W. W. Norton & Co): general chemistry SmartWork student learning objectives and problems (online homework system) for chemistry; assistance in editing of a Chemistry book

Opportunities for Speaking at academic institutions locally and nationally



Khalil Edesib, Ph.D.
Wake Forest University Health Sciences
Department of Physiology and Pharmacology
E-mail: ked2@wakehealth.edu
Availability: Spring 2015
Seminar title: "G291 Receptor Intracellular Loop 4 Modulates G Protein Activation and cAMP Production in Human Neuroblastoma"



Doris P. Molina, Ph.D.
Wake Forest University Health Sciences
Department of Physiology and Pharmacology/Neuroscience
E-mail: dpm2@wakehealth.edu
Availability: Fall 2014
Seminar title: "Mechanisms of Seizure Activity"



Elia I. Silva Lopez, Ph.D.
Wake Forest University Health Sciences
Department of Molecular Medicine
E-mail: elias@wakehealth.edu
Availability: Spring 2015
Seminar title: "Effects of Oxidation in the Structure and Functionality of Aβ2 and Its Implications in Disease"

Postdoctoral Scientific Seminar Speakers

The NIGMS Division of Training, Workforce Development, and Diversity (TWD) shares information about potential speakers to grantees of the Bridges, RISE, MARC, PREP, IMSD and other student training programs. The IRACDA scholars in this resource are listed by participating institution.

Individual Development Plans

National Postdoctoral Association (NPA)
Core Competencies Self-Assessment Checklist

- 1 Discipline-Specific Conceptual Knowledge
- 2 Professional/Research Skill Development
- 3 Communication Skills
- 4 Professionalism
- 5 Leadership & Management Skills
- 6 Responsible Conduct of Research

Rate your current level of development in each of the following, with 1 being "Needs attention" and 9 being "extremely competent."

For more information on these competencies, please visit www.nationalpostdoc.org/competencies.

Individual Development Plans



AAAS Careers site: MyIDP

Self-assessments:

SKILLS

INTERESTS

VALUES

<http://myidp.sciencecareers.org/>

myIDP is a unique, web-based career-planning tool tailored to meet the needs of PhD students and postdocs in the sciences.

Individual Development Plan Overview

An Individual Development Plan (IDP) is a structured planning tool designed to help you:

1. assess long-term career goals for research, education, and other interests
2. make a plan for attaining your goals
3. identify the resources, experiences, and opportunities you need
4. monitor and evaluate your progress toward your career plan and development

This module will guide you through the process of creating an IDP.



Individual Development Plans

	Summer Semester May-Aug Jul-Aug	Fall Semester Sep-Dec	Spring Semester Jan-Apr
Year 1	Research Orientation: Define Individual Development Plan Initiate Research project	Research, seminars and JC Research Seminar on dissertation work Co-Facilitator for RCR Tutor WSSU Life Sciences Students	Research, seminars, JC Co-Facilitator for RCR WSSU A&P 2-week module BIO783
Year 2	Research, seminars, JC Mentor MARC student WSSU Physiology 1-2 lectures Workshop: Digital Teaching Tools	Research, seminars, JC Give MARC/RISE Seminar Submit abstract to meeting Co-Instruct RCR at WSSU WSSU Biomolecules teach two-week module Mentor MARC student WFU TLC Workshop	Research, seminars, JC Grant-writing workshop WSSU Pharmacology teach 1-2 lectures case-based learning module Teaching Observation Host Prof Dev Speaker Mentor MARC student Research, seminars, JC
Year 3	Research, seminars, JC Prepare and submit NIH grant WSSU DPT Physiology 2-week segment Develop web-based Physiol module Workshop Clinical Research	Research, seminars, JC Submit abstract to meeting Prepare first draft of publications Give Job search Research Seminar WSSU Biomolecules develop and teach one 2-week module Mentor MARC student Start academic job search	Research, seminars, JC WSSU Pharmacology teach 3-4 lectures plus PT Simulation demo Employment interviews Submit/revise NIH grant minority WFU TLC Workshops
	May-Jun Prepare for academic position or continued research		

SUMMARY Outcomes of the PRIME Program

1. Train scholars in research
Outcomes: **Publications and funding**
2. Mentored teaching experiences
Outcomes: **Skills in teaching clinical scholars**
3. Train scholars in pedagogical techniques and educational philosophy
Outcomes: **Biomedical Educators**
4. Facilitate mentoring skills
Outcomes: **Laboratory and Personnel Management**
5. Train scholars in translational research
Outcomes: **Clinical and Translational Research**
6. Train scholars in Responsible Conduct of Research education
Outcomes: **Scientific ethics for biomedical and clinical researchers**



Postdoctoral Research, Instruction, and Mentoring Experience (PRIME) training program

Further information can be found at:
<http://www.wakehealth.edu/School/Hypertension-and-Vascular-Research-Center/PRIME-Program.htm>



The Office of Postdoctoral Affairs