National Institutes of Health – ESTEEMED: **E**nhancing **S**cience, **T**echnology, **E**ngin**E**ering and **M**ath **E**ducational **D**iversity

WSU MIRA: **M**otivating **I**nnovation and **R**esearch **A**chievement

MIRA Scholar Handbook

Washington State University

Welcome to MIRA!

Letter from the Program Directors:

Dear Scholar,

Welcome to the Motivating Innovation and Research Achievement (MIRA) program at WSU. We are so excited to be working with you as you begin your first year at WSU!

We know you are excited to embark on a career in the biomedical sciences just by being in the MIRA Program. You will find that by working in this program under the guidance of your faculty mentors, you will continue developing a strong academic foundation, while building research skills and one-on-one mentoring relationships that will foster what we hope will be a successful transition to the PhD, MD/Ph.D., or DVM/Ph.D. We also know that as incoming freshman you have lots of questions and interests as you explore your career possibilities. We hope that your experiences will not only help you solidify your goals but give you a giant boost towards your future.

The Program Directors, faculty mentors, and staff of the MIRA Program are personally committed to your success. While your success ultimately depends on you: your energy, your devotion, and your drive; we will be there for you to help you achieve your goals.

Remember that nobody makes it on their own. We developed this program to help connect you with and learn from a community of like-minded individuals who are passionate about biomedical sciences and the potential for biomedical sciences research to serve humankind. As program directors, we are here to help you reach your goals, and we hope that you will come to us whenever you have concerns or questions.
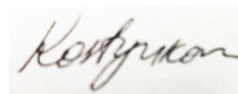
Sincerely,

Mary Sánchez Lanier	Samantha Gizerian	Alla Kostyukova
Professor	Associate Professor	Professor
Program Director	Program Director	Program Director

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MIRA ADMINISTRATION

Program Directors (PDs):

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Contact us
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In person: Smith CUE 403/519
By phone: 509-335-0014

Website: https://mira.wsu.edu/

The MIRA Office, located in CUE 403/519, is open Monday - Friday, 8:00 AM - 4:30 PM. Individual meetings with the program directors are always welcome and can be scheduled via email. All students have access to CUE 403 as a study/gathering space.

ABOUT ESTEEMED MIRA

Congratulations and welcome to the National Institutes of Health (NIH)-funded MIRA Program at Washington State University! The NIH-funded MIRA Program provides up to 2 years of support for undergraduate students in their freshman and sophomore years who come from backgrounds underrepresented in the biomedical and behavioral sciences. Additional WSU funding is available for junior and seniors who continue to meet the goals of the program. This program will enhance your ability to gain access to a high-caliber Ph.D. (or DVM/Ph.D. or MD/Ph.D.) program in the biomedical and/or behavioral fields.

Commitment to Pursue a Graduate Degree

MIRA is a program designed to fund students pursuing biomedical/behavioral & STEM related graduate degrees. Scholars are introduced to biomedical research during the first year of the program and through the program learn about the many opportunities available. Scholars make a commitment to pursue a graduate degree. During the fall, prior to graduation, scholars will apply to Ph.D. programs (or MD/Ph.D or DVM/Ph.D. programs) in biomedical/behavioral sciences. Any scholar who is no longer open to a biomedical research career, or who decides NOT to apply for a PhD, or enters a non-covered field, must withdraw from the program.

Program Eligibility

- Must begin the program the summer prior to freshman year planning to major in one of the following:

Biology	Genetics and Cell Biology
Biochemistry	Materials Science
Bioengineering	Mathematics
Chemical Engineering	Mechanical Engineering
Chemistry	Microbiology
Computer Engineering	Neuroscience
Computer Science	Physics
Electrical Engineering	Zoology

- Must be an incoming first-year student accepted to WSU Pullman and the Honors College.
- Must be available to take part in a six-week summer bridge program.
- Must be a member of a group underrepresented in biomedical graduate education (e.g. some racial or ethnic groups; individuals with disabilities, low income, or from educational environments that inhibit their ability to participate in a research career).
- Must have US citizenship or residency.
- Must have an interest in earning a doctoral degree (Ph.D.) in biomedical and/or behavioral research.

** In the case of equal qualifications, preference will be given to students in bioengineering due to NIH interests.

Benefits to You

- An annual student salary for up to 2 years (freshman and sophomore years, ≈ $12,000 per year).
- For students making satisfactory program progress a scholarship (≈ $12,000 per year) for years 3 and 4 of study at WSU (junior and senior years).
- A paid summer research experience after the sophomore year at a research-intensive institution.
- Paid travel expenses to present research at a professional conference.
- Participation in biomedical research.
- Coursework and seminars on relevant topics (e.g. graduate school, careers).
- Academic, career, and personal guidance throughout your undergraduate degree completion.
- Mentoring from faculty, graduate students, and senior MIRA scholars.

- And most importantly, *you will meet your own graduate and professional goals*.
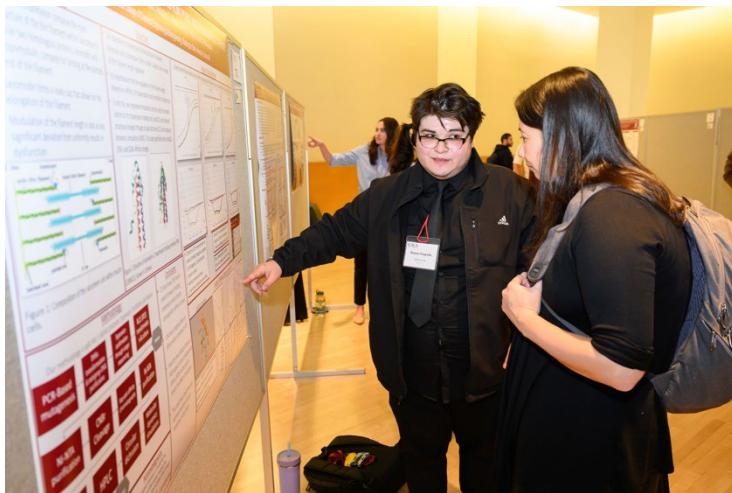
Program Requirements

- Complete your annual report (see appendix 3)

- Have regular meetings with your research mentor and the MIRA Program Directors (PDs).

- Discuss coursework/progress with Program Directors every semester.

- Commit to complete a PhD (or MD/PhD, DVM/PhD) program in biomedical and/or behavioral fields.

- Engage in a research project with a WSU faculty mentor and a summer research project.

- Attend all MIRA-related events.

- Maintain a competitive GPA appropriate for application to graduate school in your discipline.

- Respond in an appropriate time frame to all email requests.

- Carry yourself with appropriate demeanor toward other MIRA and Pre- MIRA trainees, directors, staff, and guests.

- *Freshmen*: Register for Univ 104 (research scholars section); meet regularly with MIRA PDs; engage in research a minimum of 5 – 10 hours/week; apply for summer research.

- *Sophomore*: meet regularly with MIRA PDs; engage in a research *project* a minimum of 8– 15 hours/week; apply for summer research; present research locally/nationally.

- *Junior and Senior*: Register in Research Skills/Advanced Research Skills (Univ 394/494) each semester; engage in a research *project* a minimum of 15 hours/week; apply for summer research; present research locally/nationally. Apply for a graduate program.

**Students not meeting program expectations, goals, and requirements at any time will be dismissed from the program.*

To be completed by the end of the MIRA Program:

- A research project with a WSU faculty mentor and summer research projects.

- A written/approved thesis (Honors students) or manuscript based on the research conducted.

- Presentations of research at: (1) SURCA (2) ABRCMS and where possible (3) a National/International Conference in your discipline.

- Acceptance into a Ph.D. program in biomedical and/or behavioral fields.

After the MIRA Training Program

- Complete assessment evaluations following the program.

<u>KEYS TO SUCCESS IN MIRA</u>

Take Three Simple Steps:

Making sure to always take these three simple steps will give faculty the best possible impression of who you are and how much you are committed to this program and your future success:

1. Check your email <u>at least</u> once per day, and respond promptly and formally. ***Your professionalism is demonstrated by your communication and responsiveness***.
2. Be present. Attend class, attend journal clubs, seminars, and colloquia at WSU, and generally participate. Remember: you need to become known by the faculty who will write your letters of recommendation for your graduate school and scholarship applications. ***Your commitment to the program is demonstrated by your presence (or lack thereof).***
3. Work. As a general rule of thumb, you should expect to work 20 hours/week in the MIRA program (research plus MIRA programming, etc.). This is in addition to your academic coursework. ***Your commitment to success is demonstrated by your work ethic***.

Take on Opportunity:

Think of your time in the MIRA program as the opportunity to develop three things:

1. **Knowledge:** Take courses that best complement your research interests and that get you known by faculty in your area(s) of interest.
2. **Skills:** What specialized skills (e.g. confocal microscopy, CRISPR-Cas9 editing) do you need to learn to pursue your research interests at WSU and beyond?
3. **Professional Connections:** Go to your instructors' office hours and meet with your faculty mentor regularly to discuss your academic and research progress. The more they get to know you, the more likely they are to be able to write strong letters of recommendation for you or connect you to unique opportunities to expand your skills and experience.

Take Advantage of Your Resources:

- Work with your peer mentors; they have been through most of what you're going through!
- If you're having difficulty in your courses, get help early! We can help you find tutors, etc.
- Apply for external fellowships and scholarships. The Program Directors can help you find opportunities and work with you on the applications.
- Join a professional club or society (e.g. Society of Women Engineers, Undergraduate Research Club, Molecular Biosciences Club) to increase your professional network.
- Participate in social events organized by/for MIRA students.

<u>GETTING STARTED WITH MIRA</u>

Read and Sign the MIRA Contract of Commitment
All scholars will read and sign a Contract of Commitment (see Appendix 1) which outlines the MIRA Program requirements to be completed during the training.

Provide a Short Biography and a Picture
All new scholars will send a short biography (100-200 words) and a headshot picture to the program assistant within two weeks of being selected as a MIRA scholar. The short biography and the picture will be used for our website. Follow the same format you see on the website.

Register for your MIRA Course
As a first year MIRA student you will register for Univ 104, in the section reserved for research scholars. You may find that you have been pre-registered for the course.

Complete the New Employee Paperwork
You will need to provide verification of citizenship and complete paperwork.

Complete the eRA Commons Registration
After receiving an email invitation, you will set up your National Institutes of Health eRA Commons account and complete your biographic information required there. (See appendix 2. Completing the ERA Commons Form).

Attend the Summer Bridge Program
During the summer prior to entering WSU as a first-year student (freshman) you will participate in a MIRA Summer Bridge program. The Bridge program typically begins on the second Monday in July and continues for 6 weeks, ending with the start of the semester. You will be provided a summer wage which is intended to cover your housing, food, and other essentials. We will arrange for your housing in WSU's residence halls.

PROGRESSION WITH MIRA

First Year Experience

As a first year MIRA student you will be engaged in MIRA activities and in academics. You will also be learning to navigate WSU and your courses. In addition, you will be learning more about your own personal goals.

Academics: Your most important goal is to be successful in your classes. This means mostly "A's", but lower grades do not mean the end of your goals.

Research: You will begin your career as a researcher in a biomedical research lab of your choice, in consultation with the MIRA PDs. You will probably spend five to ten hours per week in the research lab, although you may decide to work longer hours. At the beginning, you are learning to balance your time commitments between lab and academics. In general, you will begin by learning techniques and learning your way around the research lab. Hopefully, as you get more proficient and can commit more hours to your lab work, you will begin to take on a research project (often this happens at the start of summer)

Conferences: You will attend the Annual Research Conference for Minoritized Scientists (ABRCMS) https://abrcms.org/ virtually in November. Plan to miss classes during that time.

Courses and Workshops: In the first semester you will enroll in Univ 104. During the second semester you will have weekly meetings with the MIRA PDs.

Other MIRA Activities: You will be expected to participate in all MIRA activities.

Funding: Your MIRA support is for the pay periods beginning August 16 and ending May 15.

Summer between First and Second Year

You are encouraged to pursue research during the summer between the first and second year. However, this research is <u>not</u> funded by the MIRA grant. Notify the PDs that you will continue your research over the summer so we can work with you to find alternative funding. In general, summer research should be a time commitment of 8 – 10 weeks and from 20 – 40 hours per week. Students are also encouraged to apply for summer research experiences or REU's https://summerresearch.wsu.edu/current-students/research-opportunities/ . Work with the PDs on your application.

Funding: There is no MIRA funding, but other funding sources for research may be available.

Second Year Experience

Research: By the second year you should be increasing your time commitment in the lab typically to around 8 – 15 hours per week, but always balancing your time with that needed to be successful in your coursework. At this point you should be taking on your own research project which you will present at SURCA, or possibly other conferences.

Conferences: You will attend ABRCMS virtually unless you are able to present a poster in person. You will present your research at SURCA, and possibly other conferences.

Courses and Workshops: You will meet regularly with the PDs in both semesters.
Other MIRA Activities: You will continue participating in all MIRA activities.
Commitment to a Career in Biomedical Research: By your sophomore year you will begin to have an idea of what your commitment to a career in biomedical research is. If you have decided that you absolutely do not want a career in research, then you should withdraw from the program. It may be that you are still unsure. Now is the time to ask questions so that you are more comfortable making that decision.
Distinguished Scholarships: Consider applying for a national distinguished scholarship such as Goldwater, due on December 1.
Funding: Your MIRA support is for the pay periods beginning August 16 and ending May 15.

Summer Between your Second and Third Years
All students <u>are expected to engage in a research project</u> during the summer between the second and third year. The MIRA grant provides some funding for this research experience. You may choose to stay on the WSU campus or apply to an external summer research program.

*Those who are committed to a career in research are invited to continue in the MIRA program and apply to the MARC program. You cannot have MARC funding and MIRA funding at the same time.

Third and Fourth Years
Research: By the third year you should have a research project and you should be productive in your work. By this time, you should be working about 15 hours per week in the research lab both years.
Conferences and Publications: During your third year you should apply for an ABRCMS travel grant and present your research at ABRCMS. https://abrcms.org/. You should present at SURCA both years. You should also be talking to your research mentor about other presentation opportunities. In addition, you should be working with your research mentor to see if it is possible to submit any of your work for publication.
Courses and Workshops: You will enroll in UNIV 394 (juniors) or Univ 494 (seniors) all four semesters.
Other MIRA Activities: You will continue participating in all MIRA activities.
Commitment to a Career in Biomedical Research: By this point, you should be committed to a career in biomedical research (Ph.D., MD/Ph.D., DVM/Ph.D.) in order to continue with the program. You will need to sign the Third Year MIRA commitment found in the appendix.
Application to Graduate School: You will apply to graduate programs your senior year.
Funding: Assuming progress in the program and a goal of a biomedical research career your funding will continue in the form of a scholarship instead of wages.

<u>YOUR RESEARCH EXPERIENCE</u>

Finding a Faculty Research Mentor

Once you are appointed as a MIRA scholar, you will have the opportunity to do short rotations through several research laboratories, then, you and the MIRA PDs will work on finding a faculty mentor with whom you can work during the school year on a research project. You will complete 3 two-week mini-rotations in different laboratories to help you find your "best fit" lab. These short rotations are a chance for you to meet and work with the lab members and be introduced to their research and techniques.

Working in the Lab

MIRA scholars are required to work 5 - 10 hours per week on their research project during their first year. The hours on a project do not always involve lab bench work. This time includes the time you will spend searching for information, reading the literature, preparing to present at a conference, analyzing data, etc. All of these activities are considered part of your research and should be recorded onto the MIRA Research Timesheet in WorkDay. Initially, your work in the lab will involve a lot of learning techniques (i.e., how to make media/reagents, how to complete the technical tasks carried out in the lab. Eventually, you will want to work on a research project. By sophomore year you should be able to increase your time commitment in the lab.

Publications and Presentations

You are expected to present and publish your research. Any publication or documents about your research should acknowledge your MIRA support and include a disclaimer *"Research reported in this publication was supported by the National Institute of Biomedical Imaging and Bioengineering of the National Institutes of Health under Award Number R25EB027606. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health"*. Prior to releasing any press releases concerning your research the PDs must be notified and they will then notify NIH for coordination.
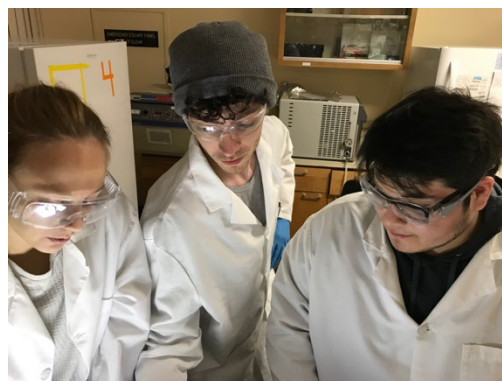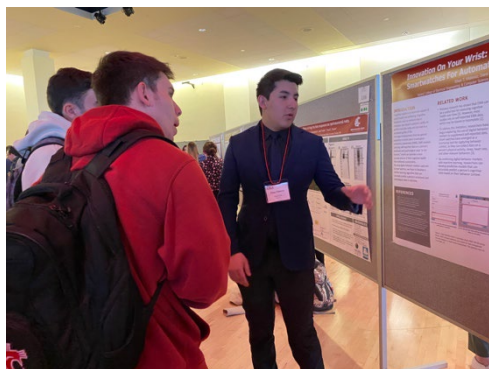
Evaluation of Your Research Work

Your research mentor will evaluate your work regularly and share the results of that evaluation with the Program Directors. The rubric that will use for that evaluation is below:

MIRA Research Expectations Rubric**

Indicator	Meeting Expectations	Approaching Expectations	Below Expectations
Basic research concepts	Fully grasps basic concepts underlying research project.	Can understand concepts involved in research project with some assistance.	Has little grasp of basic concepts underlying research.
Technical skills	Is capable of quickly adopting technical skills necessary to complete project.	Masters techniques with supervision and assistance.	Needs continual supervision to perform lab work or use tools required in research.
Independent thinking	Independently analyzes data, generates conclusions and hypotheses.	Contributes to project planning and analysis with moderate guidance.	Little contribution to project design or direction, data interpretation or troubleshooting.
Professional conduct	Consistently behaves in a professional manner.	Usually behaves in a professional manner. Does not repeat errors.	Frequently fails to behave in a professional manner.
Meets deadlines	Consistently meets deadlines.	Misses some deadlines despite reasonable effort.	Routinely misses deadlines or asks for extensions.
Defines research objectives	Is actively involved in defining achievable objectives that thoroughly address fundamental project needs.	Aids in defining objectives. Some may be too simplistic or unrealistic.	Takes little initiative in defining the project.
Communication skills	Written and oral communication is of high quality; student clearly expresses the questions and findings in his/her research.	Written work is clear and adequately presented, but may lack precision and/or concision.	Has difficulty elucidating research questions or adequately presenting data.

*Adapted from Newell et al 2002, 2004, and Fisk-Vanderbilt Masters to PhD Program Handbook 2014-2015.

Indicator	Meeting Expectations	Approaching Expectations	Below Expectations
Use of literature	Clearly demonstrates an awareness of the works of others and establishes a context for the project. Shows an understanding of information from multiple sources.	Shows limited understanding of the work in the field. Knowledge is primarily from faculty provided materials.	Fails to demonstrate an awareness of the works of others and the significance of their project.
Organized project	Effectively organizes project tasks to minimize wasted time and effort.	Identifies relevant tasks but may struggle with setting priorities and planning.	Has difficulty converting broad objectives to specific tasks.
Obtains appropriate results	Obtains meaningful results with minimal wasted effort.	Produces some results but not enough. May have difficulty overcoming setbacks.	Generates few meaningful results.
Interprets data appropriately	Provides thorough and correct analysis of data.	Provides analysis but partially incorrect or not sufficiently thorough.	Little meaningful analysis of data or blatantly incorrect.
Formulates supportable conclusions	Formulates and adequately supports meaningful conclusions.	Needs help in formulating meaningful conclusions or lacks sufficient support for their conclusions.	Conclusions are absent, wrong, trivial, or unsubstantiated.
Maintains safe Practices	Develops and follows procedures that account for safety and clean-up. Lab space is clean and neat.	Develops and follows procedures consistent with safe practices but sometimes misses minor safety issues or fails to clean-up	Fails to develop and follow safe procedures and/or clean up.
Keeps detailed records	Keeps detailed records easily followed by others, including a laboratory notebook, computer files, purchase records and others	Keeps a lab notebook but records lack organization or contain omissions	Keeps poor, sketchy or no records

FINANCIAL MATTERS

Your Commitment to the MIRA program, your research, and your academics is considered your job. You should not have additional employment. Please discuss this with the PDs if you have questions.

Appointment to the Program- Register with NIH XTrain

The official appointment as a MIRA scholar is done through the NIH eRA Commons Portal (see appendix 2). You will receive an email asking you to create an account on eRA Commons. It is important to mark your citizenship status while creating the account and completing your personal information.

Once the account has been created, you will receive another email usually titled "xTrain: Trainee Appointment Form". This xTrain form will have information on the duration of the appointment and stipend information. The xTrain appointment ends on July 31, and scholars are re- appointed on xTrain on August 1 for their second year of training.

Submission of Timesheets

Your time sheets are completed through WSU WorkDay where you will enter your time worked. These must be submitted well before the deadline. Stipend payments for late timesheets will not be processed until the next round of timesheets is due. Payments occur only during the academic year.

Wages Paid Year 1 and Year 2

Paychecks will be processed after the timesheet has been submitted through WorkDay. Payday is normally the 10th and 25th of each month. Work from the 1st to the 15th of a month is paid on the 25th, and work from the 16th to the 31st is paid on the 10th. You will have the option to receive mailed checks or have checks direct deposited to their bank accounts. You will only be paid from August 16 to May 15.

Scholarships available Year 3 and Year 4

Scholars who are continuing in the program after year 2 will receive a WSU scholarship for each of those two years.

MIRA CALENDAR OF EVENTS

MIRA Calendar

All MIRA-related events will be sent to you via e-mail. Please check your email regularly. You must use your WSU email to respond to calendar invitations to MIRA events. It is extremely important that you respond to calendar invitations within 1 business day.

MIRA Sponsored Events

MIRA scholars are expected to participate in all MIRA-sponsored events, unless timing conflicts arise, in which case you must notify the program coordinators or the program directors of such conflicts as soon as possible.

Recurring MIRA Events

Below is a list of recurring MIRA events throughout the year:

Fall Events:
- Regular MIRA meetings
- Mid-semester Scholar's Progress Meeting
- Annual Biomedical Research Conference for Minority Students (ABRCMS)
- MIRA/MARC End-of-Semester Celebration

Spring Events:
- Weekly MIRA meetings
- Mid-semester Scholar's Progress Meeting
- WSU's annual Faculty Showcase
- WSU's annual Showcase for Undergraduate Research & Creative Activities (SURCA) - all scholars are expected to give a poster presentation
- PNW LSAMP Conference
- Professional Etiquette Workshop
- MARC/MIRA - WSU Year-End/Graduation Celebration
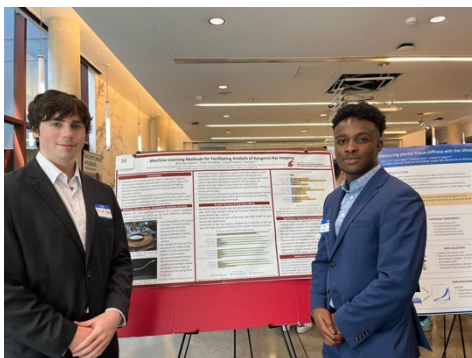
Website

Our website contains information about the MIRA program, scholars' achievements, biographies of scholars/faculty/staff, events, recent news, and contact details for the MIRA team. Please let us know your comments/suggestions on how to improve the website (or this handbook).

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https://mira.wsu.edu/

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<u>CONFERENCES AND TRAVEL</u>

Required Conferences

We hope that all MIRA scholars will present their research at one National Conference (usually Annual Biomedical Research Conference for Minoritized Scientists, ABRCMS, in the Fall https://abrcms.org/) per year while they are in the training program, subject to availability of funds. MIRA scholars are also expected to present a poster at SURCA at WSU in the spring.

Traveling to Other Conferences

You may be reimbursed for costs of attending/presenting at a conference (other than the mandatory conferences) when funds are available, provided that you first get the approval of the Program Directors in writing. The Program Coordinator will guide you in completing the paperwork needed for travel to conferences as per WSU's travel policies. Presentation at disciplinary conferences is encouraged.

Conference Poster Printing

Free poster printing service is provided for scholars that are going to present at conferences. Scholars can print their posters in the IPN department office, VBR 205. Poster printing will be available on the days/times announced via email by the Program Coordinator. Posters have to be reviewed by both the scholar and their research mentor and must be the final, approved version in order to be printed. A Poster Printing Form (Appendix 4) must be completed and signed by both you and your research mentor before coming to the office to print the poster.

Posters must be formatted to fit the poster printer's dimensions with a maximum height of 42" on one side. Scholars that print posters smaller than 42" in height will have to cut the flanking edges themselves. Poster tubes can be borrowed from the MIRA office and returned after the conference.

SUMMER RESEARCH EXPERIENCE

Summer Research

MIRA scholars are strongly encouraged to complete a Summer Research Experience (SRE) the summer following their freshman year. MIRA funding is not available for this SRE, but on occasion, research funding from non-MIRA sources may be available to students. MIRA scholars should let the PDs know as soon as possible of their intention to engage in a research project the summer following their freshman year.

MIRA scholars are required to complete an SRE between their sophomore and junior year, either at WSU or at an external research-intensive university. There is funding from the MIRA grant to support some of the costs of the summer research experience.

Finding a Suitable Placement

MIRA Scholars are encouraged to seek an SRE outside of WSU, but how do you find an external SRE?

1. Talk to your research mentor. Your research mentor may have collaborations with labs at other institutions and may have some suggestions for you.

2. Visit the WSU summer research website where you will be able to find links to external research opportunities around the country (https://summerresearch.wsu.edu/current-students/research-opportunities/).

3. Attend ABRCMS (https://abrcms.org/) and take time in the exhibitors' hall where you will find information about lots of summer research opportunities.

4. We have provided some ideas on the next page – but this is only a starting place.

When applying for a summer research experience it is a good idea to invite the PDs, your research mentors, and others to give you feedback on your CV and your application.

Partial List of Local/National Summer Research Programs

We have compiled this list of summer research programs to help you start navigating your options. Please click on each of the hyperlinks below to visit the program's website:

[Stonybrook University INDUCER program](#)

[Stonybrook University Explorations in STEM Summer Research Program](#)

[RPI Research Experience for Undergraduates Bioengineering and Biomanufacturing](#)

[Fred Hutchinson Cancer Research Center Summer Undergraduate Research Program](#)

[Harborview Injury Prevention and Research Center INSIGHT Summer Research Program](#)

[Institute for Stem Cell and Regenerative Medicine Undergraduate Summer Fellows Program](#)

[Institute for Stem Cell and Regenerative Medicine Research Experience for Undergraduates](#)

[Stipends for Training Aspiring Researchers (STAR)](#)

[Pharmacological Sciences Summer Diversity Program](#)

[Howard Hughes Medical Institute (HHMI) Exceptional Research Opportunities Program (EXROP)](#)

[Institute for Protein Design (IPD) Undergraduate Summer Research Fellowship](#)

[UW Genome Sciences Summer Research Program for Undergraduates](#)

[UW GenOM Project: Genomics Outreach for Minorities](#)

[University of Arizona Undergraduate Biology Research Program](#)

[University of Arizona Bio5 Institute](#)

[KBRIN Summer Undergraduate Biomedical Research Program](#)

[Undergraduate Summer Program in Cardiovascular Research](#)

[NCI Cancer Education Program at the University of Louisville](#)

[Lillihei Heart Institute Summer Research Program](#)

[University of Minnesota Health Disparities and Cancer Research Summer Internship](#)

Research Expectations

Once you are offered a placement, it is your responsibility to start communicating with your summer research mentor at the host institution as soon as possible. It is good practice to ask your mentor for reading materials about the research topic you are going to be working on and to have completed the reading by the time you arrive at the host institution to start your SRE. You are typically required to work 40 hours/week for 10 weeks during the SRE. Once you start your SRE, you and your summer mentor must complete the Summer Research Experience Form (Appendix 5) and send it to the Program Coordinator.

Presentation of Summer Research

It is common for the SREs to end with a Summer Research Showcase where each researcher gives either an oral or poster presentation. You may also be able to present your summer research at one of the required conferences or meetings, as well, with written permission from your summer mentor.

APPLYING TO GRADUATE SCHOOL

Applying for PhD/Graduate Programs

In your fourth year of appointment, you will be required to work on your graduate school application. This includes preparing to take and taking the GRE (when required), creating a personal statement, making a list of all the programs that you wish to apply to, sharing that list with the Program Directors and your research mentor, and contacting faculty to request letters of recommendations. Please note that most graduate school applications have deadlines between December 1st and January 1st each year.

Studying for and Taking the GRE

Most graduate programs no longer require the GRE. If required, you will begin preparing to take the GRE during the spring of your junior year, with the aim of taking the exam during the summer before or early fall of your senior year (and not later than October of your senior year).

Writing your Personal Statement

Writing your personal statement will be a collaborative effort between you, your faculty mentor, and the MARC-WSU Program Directors. The Program Directors and your mentor will read your drafts and make suggestions to help you improve your writing and show off your skills to potential graduate programs. You will have an opportunity to work on your personal statement in the Advanced Research Skills II class, as well as one-on-one editing sessions with faculty. Please have a first draft of your personal statement ready in October of your senior year so you can send it to your faculty mentor and the Program Directors in time to get constructive feedback. You will most probably have many drafts before your final one, so it is important to start early.

Letters of Recommendation

You will also need to identify faculty from whom you can obtain letters of recommendation for the graduate school application. Each person who writes your letters must 1) know you well and 2) be enthusiastic about writing you a strong letter. It is recommended that you set up appointments with the faculty to discuss your letter of recommendation and that you have a personal statement, CV, and a list of the programs you are applying to handy to give to them. Please give your recommender enough notice to write your letter, preferably 1 month before the application due date.

MIRA-WSU ALUMNI

NIH mandates that we keep track of our scholar alumni and have records of their current professional status. As such, once you graduate from the MIRA Program and WSU, we will send you an Alumni Survey (Appendix 6) every year so that you can update your information.

It's very important that you take a few minutes each year to complete the survey and stay in touch with MIRA and tell us about your accomplishments. Your success helps MIRA demonstrate to NIH that this program is doing what it set out to do and allows us to continue the program to help more students be successful in their pursuit of a graduate degree and a career in the biomedical sciences.

As an alumnus, you may also have the opportunity to interact with current MIRA students as a mentor or as part of a professional networking event. These interactions will not only give MIRA scholars a chance to hear from you about your career path, but can also demonstrate to your employers or future employers that you are committed to giving back and increasing diversity in your field.

Please note that this handbook will be updated periodically. However, most changes in policies or rules that affect this handbook's provisions will be made available to scholars through emails sent to their WSU email address.

Most recent edit: July 2023

<u>APPENDICES</u>

The forms below are for reference only. The most recent documents can be found on our website or in the MARC office.

Appendix 1. Contract of Commitment

ESTEEMED MIRA Program Commitment
Entering First Year Student

Congratulations! Your application to the ESTEEMED MIRA program has been reviewed and we are excited to be able to offer you a position in the program. You have expressed an interest in research and a career that includes research. If you accept this offer, you will be entering a partnership with the MIRA program. The MIRA leadership, and its faculty/staff, will lead you through training and experiences that will first help you to understand research and what a career in research might mean. We will then help you to gain admission to a Ph.D. program and to be highly successful in top schools in the nation.

Why is the United States willing to invest significant resources in *your* future? Simply put, we need the "best and the brightest" from diverse backgrounds who can bring unique perspectives to the many challenges we face in the United States. Your success will contribute to the United States being able to maintain its leadership in research and development in the biomedical fields. We look forward to embarking on this adventure with you.

Student Agreement

As an incoming freshman I want to learn more about a career in research and I am seriously considering applying to and entering a program in the biomedical/behavioral sciences or engineering (Ph.D., MD/Ph.D., DVM/Ph.D.) when I complete my undergraduate studies. I understand and agree with the following:

1. **Academic Success**: I will maintain a GPA in my STEM major that will allow me to enter a competitive biomedical/behavioral graduate program.

2. **Academic Year Research**: Research, and associated letters of recommendation, are critical for doctoral program admission. The exact lab schedule and number of hours required in the lab will be agreed to in consultation with my faculty research mentor. I understand that the MIRA program encourages the following commitment:

   - *Freshmen*: I will engage in research a minimum of 5 – 10 hours/week.

   - *Sophomore*: I will engage in a research *project* a minimum of 8– 15 hours/week.

   - *Junior and Senior*: I will engage in a research *project* about 15 hours/week.

3. **Enroll in MIRA Course work and participate in weekly MIRA meetings**: I will register for Univ 104 (research scholars section) my first semester and after that I will engage in regular meeting with the MIRA PDs. In my junior and senior years, I will enroll in Research Skills (Univ 394)/Advanced Research Skills (Univ 494) each semester.

4. **Summer Research**: I will apply for and participate in a summer research experience either at WSU or at another institution outside of WSU the summer following my sophomore year as per program requirements. I am encouraged to engage in research every summer that I am part of the program.

5. **Building Critical Scientific Communication Skills**:   Presentation at as many local, regional, and national conferences as possible builds communication and networking skills. Publication is also important.
   a. I will present my research at the Showcase for Undergraduate Research and Creative Activity (SURCA) at WSU and the Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS). I may also present at PNW LSAMP Conference and/or disciplinary conferences.
   b. I will acknowledge the NIH grant as in the following "*Research reported in this publication was supported by the National Institute of Biomedical Imaging and Bioengineering of the National Institutes of Health under Award Number R25EB027606. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health*" or "*Funded by a grant from the National Institute of Biomedical Imaging and Bioengineering of the National Institutes of Health (R25EB0276061).*"

6. **MIRA Program Events**: I will attend all MIRA program events. If I have a conflict, I will contact the MIRA program directors.
   a. I will enroll and be an active participant in MIRA coursework and meetings.
   b. I will attend all MIRA programming
   c. I will respond to requests from the MIRA program coordinators or program directors in a timely fashion.

7. **Communication with MARC-WSU**: I will keep the MIRA office aware of my career progress and permanent address/e-mail address for documentation of program activities.
   a. As an alumnus/a, I will keep in touch with WSU, fill out surveys, provide my CV, and update my contact information as needed for MIRA assessment.

I will always behave in an honorable and ethical manner and display respect and sensitivity to the persons around me.

Additional information can be found in the MIRA handbook which is updated annually.

Scholar name (print): _____

Scholar signature: _____ Date: _____

ESTEEMED MIRA Program
ESTEEMED MIRA Program Expectations Academic Year Three and Four

I plan on continuing in the ESTEEMED MIRA program and recognize that there are expectations that align with the goals of the program AND with the funding agency. At the end of my sophomore year, I will complete a self-evaluation with the program PDs, which will include this document.

I recognize that:
- In the third and fourth year of the MIRA program my money will come to me as an ESTEEMED MIRA scholarship for each of the two years which will be distributed at the start of each semester.
- The ESTEEMED MIRA scholarship is paid through the scholarships and financial aid office and will come to me as part of my total financial aid/scholarship package. This means loans may be replaced and the amounts of scholarships adjusted to meet federal requirements.
- I am making a commitment to complete the last two years of training.
- My goal is to pursue a PhD, (or MD/PhD., DVM/Ph.D,) with the emphasis on biomedical research.
- I must hold no other employment or time-consuming commitments that interfere with research or activity attendance.
- If I am not making satisfactory progress than my support will be withdrawn effective with either the next January or August scholarship disbursement, whichever comes first.

Academic Standards:
- I will maintain high standards of academic and laboratory honesty.
- I understand that it is an honor to participate in the ESTEEMED MIRA program and I will do everything in my control to safeguard my good name, and the academic integrity of the ESTEEMED MIRA program and Washington State University.

Program Activity Requirements:
- I will participate in any activities identified as required or mandatory including meetings, conferences, and other activities.
- I will contact the program directors/coordinators by email if I need to miss a required activity.
- I will complete the required courses (Univ 394 and Univ 494) each semester of the third and fourth year of the ESTEEMED MIRA program.
- I will pursue a summer research opportunity between my sophomore and junior year as well as between my junior and senior year (see below for summer research program details).
- I will continue my undergraduate research during the academic year.
- I will present my research annually at SURCA.

Additional Requirements:
- ESTEEMED MIRA is funded by the NIH and, thus, my research at WSU and in summer programs must have an obvious biomedical or behavioral application. I will resign from the program if I choose to pursue fields of research that are not medical related.
- I understand that changing to an unapproved major will result in me having to resign from the MIRA program. Not telling the program about such a change will result in me having to reimburse the program for all funds received since the change.

Time Commitment:

- The ESTEEMED MIRA program expects about 15 hours/week research commitment during the Fall and Spring semesters, and 40 hours/week for eight to ten weeks during the summer. A research commitment includes time spent in data analysis, literature searches, writing papers, and work in the laboratory. I will commit this time to my research.

- I understand that I am expected to consistently work this number of hours, although slight fluctuations due to midterms/finals are okay, with approval of my research mentor. Working consistently fewer hours indicates a lack of interest/engagement and will lead to termination.

- Program activities in Fall or Spring will count for no more than 5 – 8 of your hours each week.

- Coursework should be planned so that the full number of laboratory hours can take place during the work week (M – F).

- At times, as part of my education and depending on my project, I might have to spend more than the required number of hours to finish my project; HOWEVER, if my PI is demanding more hours regularly, I will contact a program director.

Graduate Program Requirements:

- During the fall, prior to graduation, I will apply to enough Ph.D. programs in Biomedical, Behavioral or Biochemical Sciences to include application to "aspirational" graduate programs, programs that I am likely to be accepted to, and programs that I am *very* likely to be accepted to. If needed, I will work with the program PD's to obtain application fee waivers. I will share the list of programs that I apply to with the Program PDs. If I decide NOT to apply for a PhD, or enter a non-covered field, I must notify the program directors and withdraw from the program.

- I will not apply to Medical School or other Professional Degree programs unless they are formal MD/Ph.D or DVM/Ph.D programs.

WSU Research Requirements:

- I will fully engage with the research and learn the foundations and purposes of my experiments and techniques.

- I will work diligently and responsibly in the lab to earn a strong letter of recommendation.

- I am expected to eventually have an independent project for which I will take responsibility and drive it forward to completion.

- I will NOT plan research experiments that will interfere with required program activities. If my research mentor/lab supervisor expect me to do so I will contact the MIRA program PDs.

- I will establish a semester schedule of when I will be in the laboratory and provide it to my PI.

- I will notify my mentor or lab supervisor if I will be absent from the lab.

- If my mentor or the program detects a pattern of behavior in the lab (and activities) that shows lack of engagement, I will be further evaluated for termination.

Summer Research Requirements:

- I understand that I will be supported by the MIRA program for my required summer research between my sophomore and junior year and that this research can take place on or off campus.

- If I have not completed summer research between my sophomore and junior year, I will be terminated from the MIRA program unless mitigating circumstances are brought to the PD.

- Any publications/abstracts resulting from your summer work must also list the MIRA grant and the program needs to be made aware of them.

Conference Requirements:
- I will present my research annually, including at SURCA and a national meeting.
- I will arrange with my course instructors to miss my courses or take labs well before the conference; the program can provide a letter of excuse.

Academic Requirements:
- I will maintain a GPA that will allow me to enter a competitive graduate program.
- I will take Univ 394 and Univ 494 each semester of my junior and senior year.
- I must maintain full time status throughout each semester (at least 12 hours).
- I will come in and see a program PD if I am in trouble academically.

Communication Requirements:
- I will provide current contact information to program staff (phone, cell, functional email).
- I will notify the program if an emergency prevents me from participating in any aspect of the program.
- I will notify MIRA program staff immediately if I need to take time off for extreme personal reasons, am considering leaving my laboratory of record, of if I wish to withdraw from the program.

Evaluation:
- I will participate in and quickly and accurately complete all required evaluation activities.
- I will cooperate with post-graduation evaluation and tracking activities.

I recognize that my participation in ESTEEMED MIRA is a privilege, not a right, and will make every effort to comply with the requirements of the program listed above. If for any reason, I begin to fall short in the program, I need to keep the program staff informed and seek their assistance. If I fail to do so, I recognize that my position in this training program may be forfeited and I will be terminated from the program.

Signature of Student_____Date_____

Signature of PD_____Date_____

Appendix 2. NIH eRA Commons

The MIRA program is funded by the National Institutes of Health (NIH). This money is awarded to WSU and your paychecks will come from WSU. As such, you will need to follow the standard WSU policies that will set you up as an employee in the WSU system.

In addition, you must register in the NIH eRA Commons system. NIH must approve you as a participant in one of their funded programs. This must happen for you to be paid. Based on your application, we know that you meet the qualifications of this program and so you should have no concerns about this process, other than making sure it is done in a timely fashion.

<u>What happens first?</u>
1. You will make sure that we have your updated curriculum vitae (CV).
2. The grant PI's will submit your CV to the WSU Office of Research Support and Operations (ORSO). ORSO is the WSU sponsored research office.
3. ORSO will assign you an NIH eRA Commons user ID. This is your user ID for as long as you are at WSU. If you move to another university you will have to re-register through a similar process at your new university.
4. You will receive an invitation to complete the registration process on the NIH website.

<u>What do you need to do now?</u>
1. Use the provided link to go to the eRA Commons website. You will need to set up your password and your two-factor authentication.
2. Use Login.Gov. at the top left of the eRA Commons webpage. Do not use the "login with eRA credentials" which is also on the left and is the more obvious of the two.
   Note that you will need to change your password annually and you will receive no warning that your password needs changing except you will not be able to get into the website.
3. Once you are logged into the system you will need to do several things. You can access these functions through the square in the upper left-hand corner that looks like it has 9 little squares arranged in a square. You can also access your personal profile from the menu on the left.
   a. Complete your personal profile. In the process of setting up your personal profile please make sure that you obtain an ORCID ID. This ID is important when you start publishing. This means that you will have a eRA Commons ID AND an ORCID ID.
   b. You will then need to select xTrain from the menu at the top of the page or from that white box at your landing page. This is your actual appointment form that you are completing. You will likely have to answer several questions in xTrain.

Please know that we cannot see any of your answers to questions with personal information. We will only be able to see that you answered the question as it will say "completed". We will NOT be able to see your answer as in the two examples below.

3. SEX ☒ Completed

☐ M ☐ F

☐ Do Not Wish to Provide

12. What's your racial background? *Mark (X) one or more*

☒ Completed
☐ American Indian or Alaska Native
☐ Native Hawaiian or other Pacific Islander
☐ Asian
☐ Black or African American
☐ White
☐ Intentionally Withheld

Most of the questions are self-explanatory, some are not. One of the questions may be "Are you from a disadvantaged background"? All students in the MARC or MIRA program must meet eligibility requirements. As such, you cannot check "not applicable" for this question because it is, in fact, applicable to both the MARC and MIRA grants. There are many criteria by which NIH judges individuals to be from "disadvantaged backgrounds". These include being low income, being from a rural area or an area with inadequate schools, being a first-generation student, having a disability, etc. **For this question you must select either "yes", "no", or "do not wish to provide".** <u>Do not select "not applicable".</u>

Under "Education/Career Level" you should select "undergraduate student".

4. The last thing you will need to do is submit the form to the principal investigator. That means that the form then goes to the grant PI's. Please do not forget this step. The grant PI's will then submit the form to NIH. NIH will approve the form and we will then be able to pay you.

If you have questions, please ask.
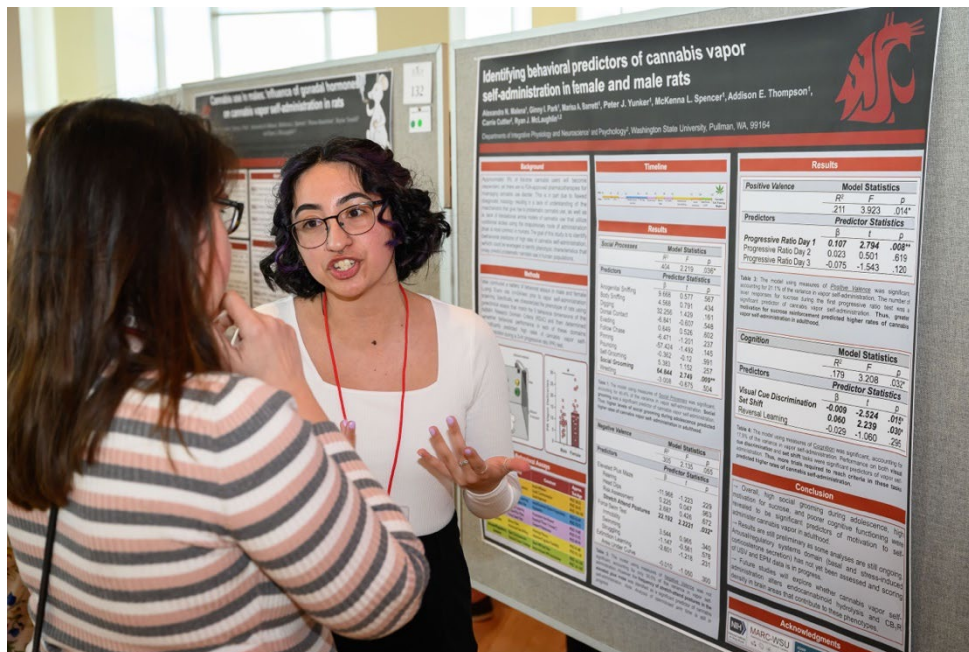
__APPENDIX 3. MIRA Annual Report__

Your Annual Report with the following information is due by March 10 each year.

Please address each of the items below. If you have nothing applicable under a category, please indicate that by saying, for example, "I have no publications, no papers that have been submitted, and no manuscripts in preparation". Please do not just leave it blank.

Name: _____

eRA Commons Username: _____

Major(s) and Minor(s): _____

Expected date of graduation _____

Long term professional goal (i.e. Ph.D.; MD/Ph.D.; DVM/Ph.D.): _____

Please attach a CV or résumé and (where applicable) your summer research experience form found in appendix 5 of this handbook.

1. **Publications**

    Provide a list of all publications for which you were an author or co-author. Put a star next to those that were published since last March (that is, in the last year).

    List Authors (Last name, first name), Year, Title, Journal, Volume, Inclusive Pages, in that order as per below

    Smith, Jane; Evan, John; Brown, Mary. 2022. The role of E6 in cervical cancer. J Virol. 22:35-40

    Remember that any publication or documents about your research should acknowledge your MARC support and include a disclaimer "Research reported in this publication was supported by the National Institute of Biomedical Imaging and Bioengineering of the National Institutes of Health under Award Number R25EB027606. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health".

2. **Provide a list of all publications which are submitted (submitted, but not yet accepted) or in the process of being written (manuscript in preparation) or in which you have or will receive(d) an acknowledgement.**

    Use the formats in the examples below.

    Smith, Jane; Evan, John; Brown, Mary. 2022. The role of E6 in cervical cancer. (manuscript in preparation)

    Smith, Jane; Evan, John; Brown, Mary. 2022. The role of E6 in cervical cancer. (manuscript in preparation, listed in acknowledgements)

    Smith, Jane; Evan, John; Brown, Mary. 2022. The role of E6 in cervical cancer. J Virol. 22:35-40 (listed in acknowledgements)

    Smith, Jane; Evan, John; Brown, Mary. 2022. The role of E6 in cervical cancer. (submitted)

3. **Presentations**

Provide a list of *all* presentations. Put a star next to those presentations made since last March (that is, in the last year). Please include both formal and informal presentations including conference presentations, presentations to a department advisory board, research presentations given to a class or to a club, research presentations given in lab meeting as well as any other presentations made. Please use formal citations for your presentations list Authors (last name, first name – authors typically include your research mentor(s)), Year, Title, name of where you are presenting, such as a conference, location of the presentations – city, state.

Remember, all poster presentations should acknowledge your MARC support "*"Research reported in this publication was supported by the National Institute of National Institute of Biomedical Imaging and Bioengineering of the National Institutes of Health under Award Number R25EB0276061."*

Citation examples:

Smith, Jane; Evan, John; Brown, Mary. 2022. The role of E6 in cervical cancer. Showcase for Undergraduate Research and Creative Activity (SURCA), Pullman, WA

Smith, Jane. 2022. The role of E6 in cervical cancer. Invited presentation to Introductory Biology Class, Pullman, WA.

Smith, Jane; Evan, John; Brown, Mary. 2022. The role of E6 in cervical cancer. Presented at lab meeting.

4. **Significant products developed (e.g., website, computer programs, software, GenBank gene sequence)**

5. **Research Project and Progress**

*This information will be part of an NIH annual report. Please have your research PI review this prior to submitting.

a. Provide the title of your research project: _____
(This title should look like what you would put at the top of a published paper or your SURCA title)

b. Provide the overall long-term goal of your research – <u>the big picture</u>
(This is <u>not</u> a description of your project but the overall goal of your lab – why it matters. It might be something like "the long-term goal of my lab is to understand how memories influence drug relapse so that we can help prevent or interfere with the process of relapse in recovering addicts")

c. Provide a one or two sentence description of your research – this should include the goal or hypothesis for your research
(this should read something like "the goal of my research is to _____, my specific hypothesis is _____)

d. Describe your research, your specific contributions, and progress of the research.
(this section should be at least a full paragraph or more)

e. Provide the date(s) you were working on the research project(s)

If you have had more than one research project since last March you must describe each project. This should include any work you did over the summer.

6. **List your mentor(s) and their role in your work** – example below

    Note that you will almost always have several mentors
    Name of research mentor, PI
    Name of research mentor, graduate student
    Name of research mentor, Research Associate

    If you have had more than one research project since last March you must list your mentors for each project and which project you worked with them on.

7. **List your Honors and Awards.** This should include any fellowships, scholarships, or other support you are receiving. Indicate why you are receiving the support. This might be a scholarship for your academics or a scholarship or fellowship for your research. Do not include loans or grants.

8. **List workshops you have attended that have anything to do with research.** This would include lab safety training, radiation safety, animal research training, training in ethics, publications, presentations, etc. Please include workshops from conferences you attended. These should each be listed with the name of the workshop, month and year attended and number of hours. If you were at a conference, indicate which conference and whether it was virtual or in person.

9. **List career or professional development activities**. This should include any workshops you have attended such as creating a CV, attending graduate school, creating a poster, giving a presentation, career fairs, etc. Please include any workshops you attended at conferences. These should each be listed with the name of the workshop, month and year attended and number of hours. If you were at a conference, indicate which conference and whether it was virtual or in person.

10. **List ALL conferences attended**. Indicate if they were national, regional, or local conferences and whether they were virtual or in person.

11. **Please list/describe any clubs, volunteer activities, leadership activities, or other extracurricular activities that you have been involved in.**

12. **Have you attended regular lab meetings, and if yes how often, and what was your contribution?**

13. **Have you completed summer research since last March? If so, where? What was your research on? Have you presented your summer research? Was your research part of an REU?**

14. **Please list your lab rotations, what you did (even if it was observational) and the dates of the rotations.**

Appendix 4. Poster Printing Form

Please complete this form and submit to IPN staff in VBR 205 at the time of printing

Presenter (Student) Name:	
Title of Poster:	
Name of Conference:	
Date of Presentation:	
Final Poster Dimensions:	
Poster file name:	
Poster file type*:	PPT ☐ *only these file types will be accepted PDF ☐

The undersigned student and research mentor have reviewed the poster and approve the submitted file as the final version to be printed.

Student Signature: _____ Date: _____

Mentor Signature: _____ Date: _____

Appendix 5. Summary Research Experience (SRE) Form

Student Name: _____

WSU Research Mentor Name: _____

Duration of SRE: (   )weeks   Start Date: _____   End Date: _____

Host Institution: _____

Host Program Department: _____

SRE Mentor(s) Name(s): _____

_____

Hours Working in the lab expected per week: _____

Did you present your work, and if yes, list the citation and presentation details (lab meeting, summer research symposium, etc.): _____

_____

Give a brief description of the SRE Project:
Overall goal of lab
Goal of your project
What you accomplished

Appendix 6. MIRA Annual Alumni Survey

Please complete this survey and return it along with a current CV to wsu.mira@wsu.edu.

Name:_____ Date graduated from WSU: _____

Are you pursuing or have you completed a graduate degree? _____

☐ Yes, I have completed a degree (e.g. Ph.D.): _____   Year Completed: _____

☐ Yes, I am pursuing a degree (e.g. Ph.D.): _____   Expected year of completion: _____

    Institution_____ Department _____

    Which Field (e.g. Biology) is your degree in? _____

☐ No, I am not currently pursuing and have not completed a graduate degree, but I plan to.

    If you have plans to pursue a graduate degree, please provide when, where, and which program

    _____

☐ No, I have not completed a graduate degree and am not currently planning to pursue one.

Are you currently receiving funding from any NIH program, and if so, which one?
_____

What are some of your recent accomplishments (include all grants, awards, publications etc. that are not listed in your CV)?
_____
_____
_____
_____

Has your participation in either MARC or MIRA or both helped you over the last year?

_____
_____
_____
_____

Please update the following:

Name: _____

Email: _____   Cell Phone: _____

Address: _____

Job title and Employer: _____

Notes:

<u>Notes:</u>