Summer 2019 High School and Undergraduate Interns...

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Summer 2019 High School and Undergraduate Internship in Biomedical Informatics

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High School and Undergraduate Internship Application Summer 2019 Biomedical Informatics

This is the first part of the application process for the internship program in biomedical informatics at OHSU.

This is a 10-12 week opportunity with projects starting June 24, 2019. Interns will work 40 hours per week and will be paid $12.00 per hour.

Once you complete the online application, the next step will be to provide the following documents:
1. Transcripts - unofficial transcripts acceptable, email pdf email to ilgan@ohsu.edu or fax to 503-346-6815
2. One letter of recommendation, emailed to ilgan@ohsu.edu

1. Please enter the following information to start your applica

* Name:

Address:

City/Town:

State: -- select state --

ZIP:

Country:

Email Address:

Phone Number:

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2. Demographic Infomation (Optional)

What groups does NIH consider to be in need of a special recruitment and retention plan in order to diversify the biomedical, behavioral, clinical, and social sciences workforce?

A. Individuals from racial and ethnic groups that have been shown by the National Science Foundation to be underrepresented in health-related sciences on a national basis (see data at http://www.nsf.gov/statistics/showpub.cfm?TopID=2&SubID=27 and the report Women, Minorities, and Persons with Disabilities in Science and Engineering, 2007, p. 262). The following racial and ethnic groups have been shown to be underrepresented in biomedical research: American Indians or Alaska Natives, Blacks or African Americans, Hispanics or Latinos, Native Hawaiians or Other Pacific Islanders. In addition, it is recognized that under-representation can vary from setting to setting and individuals from racial or ethnic groups that can be convincingly demonstrated to be underrepresented by the grantee institution should be included in the recruitment and retention plan.

B. Individuals with disabilities, who are defined as those with a physical or mental impairment that substantially limits one or more major life activities.

C. Individuals from disadvantaged backgrounds who are defined

as:
1. Individuals who come from a family with an annual income below established low-income thresholds. These thresholds based on family size, published by the U.S. Bureau of the Census; adjusted annually for changes in the Consumer Price

Index; and adjusted by the Secretary for use in all health professions programs. The Secretary periodically publishes these income levels at http://aspe.hhs.gov/poverty/index.shtml. For individuals from low-income backgrounds, the institution must be able to demonstrate that such candidates (a) have qualified for Federal disadvantaged assistance; or (b) have received any of the following student loans: Health Professional Student Loans (HPSL), Loans for Disadvantaged Student Program; or (c) have received scholarships from the U.S. Department of Health and Human Services under the Scholarship for Individuals with Exceptional Financial Need

2. Individuals wh
environment suc
environments tha
inhibited the individual from obtaining the knowledge, skills, and abilities necessary to develop and participate in a research career.

http://grants.nih.gov/training/faq_diversity.htm#867

	Yes	No
Are you an Underrepresented Minority?	◯	◯
Are you an Individual with a disability?	◯	◯
Are you economically disadvantaged?	◯	◯

3. Please describe your race/ethnicity.

- [ ] American Indian or Alaska Native
- [ ] Asian
- [ ] Black or African American
- [ ] Native Hawaiian or Other Pacific Islander
- [ ] White
- [ ] Other (please specify)

*** 4. Country of Citizenship**

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Academic Information

5. Please provide us with the following academic information

School attending

Major

Minor

Dates attended

Current class in school

Completed credit hours

Current cumulative GPA

Anticipated graduation date

6. Please provide information about experience/classes you have had in the following areas

Programming experience

Quantitative or Qualitative experience

Statistical skills

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Project Opportunities

*** 7. Please rank your top 4 internships. In each question, the faculty lead(s), the description, and the skills required are listed.**

	1st	2nd	3rd	4
Semi-structured Information Retrieval in Clinical Text for Cohort Identification Faculty: William Hersh, MD; Steven Bedrick, PhD; Aaron Cohen, MD The overall goal of this project is to process electronic health record to identify patients who are potential candidates for clinical studies. Identifying patients and recruiting them to participate in specific studies can be very difficult. In this project, we are using a large data set of patient records to develop generalized approaches to address this problem. The project involves programming, with different aspects of the project requiring Python, R, or Java. The specific part of the project and language required will depend on the project needs and student capabilities. On campus intern required.	○	○	○	○

1st 2nd 3rd 4

Care Management Plus
Faculty: David Dorr, MD
Care Management Plus focuses on understanding how data, information, and knowledge can improve the health and well-being of our most vulnerable populations, including older adults and those with multiple chronic conditions. Working with this team might include focusing on risk stratification, predictive analytics, or studying mod coordination anc patients.

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Integrating care through standards-based information exchange between a patient risk assessment tool and electronic health record
Faculty: Karen Eden, PhD; Ben Orwoll, MD; Heidi Nelson, MD, MPH; William Hersh, MD
Although computer-based decision aids have guided health care for years, they are typically standalone applications that fail to connect with the patient's larger healthcare experience. Clinicians and health systems seek further integration of decision aids into point of care encounters with patients as well as into the electronic health record (EHR) itself. Decision aids could be enhanced by connecting directly to the EHR to leverage existing data, improve accuracy and consistency of patient information, and reduce data collection efforts of patients and clinicians. Integration would also provide the patients and clinicians opportunities to verify, update, and correct information. We are working toward such an integration, and we seek the help of a student to develop an interface between the EHR and Mammoscreen (mammoscreen.org) using the emerging Fast Health Interoperability Resources (FHIR, hl7.org/fhir) standard and the Substitutable Medical Apps, Reusable Technology (SMART, smarthealthit.org) framework. Initial work will include configuring a test environment and a simulated dataset that can be used to prototype the integration. Basic experience with Javascript or a similar programming language is required. This internship could be completed remotely or on campus.

1st 2nd 3rd 4

Evaluation of EHR system implementation and workflow at an academic medical center.
Faculty: Drs. Michael Chiang & Michelle Hribar
Ongoing projects involve analysis of outcome measures such as speed, efficiency, and documentation quality; as well as optimization of clinical workflow using EHR data and computer simulations. Skills: statistical analysis (e.g. R), computer programming. On campus internship

Artificial Intellig Disease
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Faculty: Drs. Mi Kalpathy-Cramer, and Kemal Sonmez:
This project involves design and evaluation of diagnostic algorithms (e.g. machine learning, deep learning) and comparison to interpretation by human experts. Skills: computer programming, database architecture, statistical analysis. On campus internship.

Understanding the Role of the Microbiome in Bladder Health
Faculty: Lisa Karstens, PhD
Understanding the role of the microbiome in bladder health. The overall goal of this research is to understand how the microbiomes of the gut, vagina, and bladder contribute to bladder health and overactive bladder symptoms. Intern projects include developing, testing, and improving the pipelines for handling the clinical data associated with these projects (using REDCap), and bioinformatic pipelines for handling 16S rRNA gene sequencing data as well as NMR metabolomics data (primarily in R). The projects will provide experience of analysis and biological interpretation of so-called 'big data' that arises from the rich and complex datasets generated by high throughput techniques used in basic research. Excellent record-keeping skills and self-motivation are essential. Some familiarity with programming and statistical analysis are preferred but not essential.

1st 2nd 3rd 4

Understanding the brain – bladder connection
Dr. Lisa Karstens, PhD - In collaboration with Drs. Damien Fair and Rahel Nardos, we are using advanced neuroimaging techniques to understand how the brain regulates bladder function and if there are functional and structural differences between women with overactive bladder syndrome and healthy controls. Interns will become exposed and learn state of the art neuroimaging te
including using t
(HCP) pipeline f
with command li
are beneficial but not necessary. Self-motivation and organization skills are essential.

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Reactome Biological Pathway Knowledgebase
Dr. Guanming Wu
Reactome is the most comprehensive open source biological pathway knowledgebase, widely used in the research community as a systems biology platform for biological big-data visualization and analysis. Intern projects will help the team to implement new features to the project's web application (www.reactome.org) and/or its Cytoscape app, ReactomeFIViz (http://apps.cytoscape.org/apps/reactomefiplugin) and facilitate the project's software infrastructure. By working with these projects, interns will learn how to work in a globally collaborative open source project within an academic setting, acquire valuable experience with modern software development techniques and practice, and expose to bioinformatics and computational biology, especially systems biology. Skills: Java programming with biological related course work, self-motivated and willing to learn.

Assistant for Qualitative Study of Electronic Health Records Use by Medical Scribes
Joan Ash

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Essay Question

* **8. Essay Question: Please tell us how your education, experience, skills, and interest make you the best candidate for your top (few) choices.**

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Finishing up the application process

*** 9. How did you hear about this program?**

10. Are you planning to pursue graduate education? If so, in what field.

Thank you for applying to the summer undergraduate internship program in biomedical informatics at OHSU.

The application deadline is Arpil 1, 2019. Candidates will be notified the the end of April regarding acceptance into the program.

Please remember to submit the additional documents to complete your application.
1. Transcripts - unofficial transcripts are acceptable, email pdf to ilgan@ohsu.edu or fax to 503-346-6815
2. One letter of recommendation, emailed to ilgan@ohsu.edu

You can also mail the above documents to

Biomedical Informatics Internship Program
3181 SW Sam Jackson Park Rd
BICC 504
Portland, OR 97239

Specific questions can be directed to Andrea Ilg at ilgan@ohsu.edu or 503-494-2547

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