position description

Date: June 2021
Title: Analyst Programmer 1
Department: Genetics
School: Medicine
Location: Biomedical Research Building
Supervisor Name and Title: Helen Miranda, PhD, Assistant Professor

POSITION OBJECTIVE
Working under direct supervision, the Analyst Programmer 1 will formulate and define experimental objectives through research and analysis of complex bioinformatics applications, as well as generate new sequencing data sets for analysis. The research investigates how human genetic mutations lead to neurological diseases; and how these mutations affect the transcriptome and proteome on a genome-wide scale in order to understand the pathophysiology of these diseases. Bioinformatics approaches are used to generate meaningful scientific hypothesis about neurodegenerative and neurodevelopmental diseases.

ESSENTIAL FUNCTIONS
1. Write and maintain straightforward applications. Design, code, test, debug, modify and document systems from detailed instructions and specifications. Download and process large DNA, RNA and proteomics data files using existing pipelines. May perform very limited system analysis work. (40%)
2. Perform laboratory experiments to produce novel next-generation sequencing data. (15%)
3. Assist in preparing detailed specifications from which programs are written. Modify detailed pipelines or create new pipelines to customize analysis. Automate routine tasks. Scripts will be written in R and/or Python. Program turnover to the production control supervisor. (15%)
4. Analyze and define significance of results produced from scientific experiments using statistical tests in R and/or SAS and create quality images for papers and grant proposals using R, PowerPoint and software such as Adobe Illustrator and Photoshop. (15%)
5. Keep accurate records and protocols in an electronic notebook and organize and maintain digital data in a database or repository using SQL or related software. Learn administrative application standards, procedures and policies for software development and stay abreast of newly developed programs in the field. (10%)

NONESSENTIAL FUNCTIONS
1. Present in lab meetings. Train undergraduates and collaborate with lab personnel as required. (2%)
2. Interact with researchers and the Case Western Reserve University sequencing core to define sequencing requirements and develop biological and analytical solutions. (2%)
3. Perform other duties as assigned. (1%)
CONTACTS
Department: Daily contact with department staff in consultation necessary for data analyses, code debugging and code optimization.
University: Regular contact with department administrators to exchange information.
External: Occasional contact with outside consultants and representatives in consultation necessary for data analyses, code debugging and code optimization.
Students: Frequent contact with graduate students in consultation necessary for data analyses, code debugging and code optimization.

SUPERVISORY RESPONSIBILITIES
This position has no direct supervision of staff employees.

QUALIFICATIONS
Experience and Education: 0 to 3 months of experience and Associate's degree in a computer-related research field required.

REQUIRED SKILLS
1. Requires programming experience in multiple computational languages (C, Python, R, Perl, etc.). Shell scripting experience such as Linux Bash scripting is desirable. Relational database design and maintenance would be valued.
2. Ability to operate computers running Microsoft Windows, Mac OS and Unix in addition to basic laboratory equipment.
3. Knowledge and understanding of commonly-used concepts, practices and procedures within the field of Genomics.
4. Strong interpersonal skills: ability to work and communicate with various individuals from a broad spectrum of disciplines.
5. Ability to work collaboratively within an interdisciplinary research team. (Must be highly motivated, responsible, dependable and a self-starter.)
6. Professional and effective verbal and written communication skills.
7. Strong organization skills: ability to multi-task, prioritize and meet deadlines. Must demonstrate attention to detail and accuracy, time management skills and proven ability to successfully follow-through on assigned projects.
8. Must demonstrate willingness to learn new techniques, procedures, processes and computer programs as needed. This person will rely on instructions and protocols to perform the functions of the job.
9. Must demonstrate flexibility and ability to work under pressure; must be able and willing to work in a fast-paced, changing environment and conform to shifting priorities, demands and timeline.
10. Ability to meet consistent attendance.
11. Ability to interact with colleagues, supervisors and customers face to face.
WORKING CONDITIONS
General office and laboratory environment. Limited manual dexterity required. The employee will perform repetitive motion using computer mouse and keyboard to type. Work requires negligible physical exertion. May have exposure to hazards, such as blood borne pathogens and standard laboratory chemicals. May be required to use personal protective equipment, including standard lab coat, gloves and safety glasses when appropriate.