

# SEQUENCE ANALYSIS AND GENOMICS, POST-MASTER'S CERTIFICATE

## Post-Master's Certificate in Sequence Analysis and Genomics (<https://advanced.jhu.edu/academics/certificates/sequence-analysis-genomics/>)

The field of bioinformatics is continually expanding and challenging our ability to bridge the gap between molecular biology and computer technology. Specifically, the revolution in sequencing technology has resulted in vast quantities of data that require storage and analysis. The analysis of nucleic acid and protein data requires specialized bioinformatics tools and an understanding of genomics. The emerging sequencing technologies and accompanying bioinformatics tools will advance personalized medicine, pharmacogenomics, and molecular diagnostics methods. The advancement of these tools will open new avenues of research on many fronts.

This certificate is targeted at scientists who already have grounding in biochemistry, molecular biology, and cell biology, and do not need advanced computer skills. It introduces students to the foundations of bioinformatics through the core bioinformatics courses, and then the students take upper-level courses that are required for understanding and performing sequence and genomic analysis. The program is offered both online and onsite.

**Please note that this catalog entry is for currently enrolled students only.** The Post-Master's Certificate in Sequence Analysis and Genomics program is not currently accepting new students.

## Admissions Criteria for All Advanced Academic Programs (<https://e-catalogue.jhu.edu/arts-sciences/advanced-academic-programs/Admission/#admissionrequirements>)

### PROGRAM-SPECIFIC REQUIREMENTS

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## Program Requirements

Students in the Post-Master's Certificate in Sequence Analysis and Genomics program must complete:

- Three required core courses
- Two elective courses

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Code	Title	Credits
<b>Core Courses - Required:</b>		<b>12</b>
AS.410.633	Introduction to Bioinformatics	
AS.410.634	Practical Computer Concepts for Bioinformatics	
AS.410.635	Bioinformatics: Tools for Genome Analysis	
or AS.410.666		
<b>Elective Courses</b>		
Select two of the following:		<b>8</b>
AS.410.635	Bioinformatics: Tools for Genome Analysis	
AS.410.639	Protein Bioinformatics	
AS.410.640	Molecular Phylogenetic Techniques	
AS.410.645	Biostatistics	
AS.410.666		
AS.410.671	Gene Expression Data Analysis and Visualization	
AS.410.709	Cancer Genomics	
AS.410.712	Advanced Practical Computer Concepts for Bioinformatics	
AS.410.713		
AS.410.734	Practical Introduction to Metagenomics	
AS.410.736	Genomic and Personalized Medicine	
<b>Total Credits</b>		<b>20</b>

See course requirements in the Center for Biotechnology Education ([https://e-catalogue.jhu.edu/course-descriptions/\\_biotechnology/](https://e-catalogue.jhu.edu/course-descriptions/_biotechnology/)).