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Division of Molecular Biology and Human Genetics

Postgraduate Study BSc Honours

The Division of Molecular Biology and Human Genetics, Department Biomedical Sciences, Faculty of Medicine and Health Sciences, Stellenbosch University offers a postgraduate Honours course that affords applicants the opportunity to develop their research skills as a scientist and master a variety of molecular techniques. For more information on application criteria please read below.

Specific admission requirements

- An average final mark of more than 60% in one of the following qualifications from a recognised tertiary training institution:
  - √ a bachelor's degree with Biochemistry, Genetics, Microbiology, Physiology, Zoology or Biotechnology at third-year level
  - √ a bachelor's degree in science with a major in any of the subjects offered by the Faculty of Science whether Biological, Physical or Mathematical
  - √ a degree in engineering
  - √ an MBChB or BChD degree
- You may be admitted with an average final mark of less than 60% for the BSc at third-year level based on:
  - √ an adequate motivation and/or
  - √ successful completion of additional work, and
  - √ proof of competence

Application procedure and closing date

Apply online at www.sun.ac.za by **30 September** of the previous year. *Applications for prospective international students* close on **31 August**.

Department Biomedical Sciences | Stellenbosch University
F416, Fisan Building, Stellenbosch University Medical Campus, Francie Van Zijl Drive, Tygerberg, 7505
Tel: +27 21 938 9400 | Email: mbhg@sun.ac.za | www.mbhg-blog.com

Duration of programme

The programme extends over one year on a full-time basis.

Programme content

Molecular Biology and Human Genetics Theory 715 (45)

Molecular Biology and Human Genetics Project 775 (75)

Programme description

This programme will equip you with both a theoretical and practical background in the basic concepts of molecular biology and human genetics. It comprises lectures, tutorials, assignments, journal article analytical discussions, writing of a project proposal, participation in a six-month research project, a research report, a research presentation and written examinations.

The program is structured as follows:

Foundational sub-modules *(compulsory)*

This section includes a laboratory techniques course which runs concurrently with, and complements the theoretical components.

1. Basic Laboratory Practice
2. Molecular Biology *(Genomes, chromosomes & gene expression; Methods in functional studies)*
3. Immunology *(Innate and adaptive immune systems and their roles in pathology; Development of diagnostic tests)*
4. Biostatistics & Study Design *(Applied statistics focusing on a non-mathematical, conceptual, resampling-based approach)*
5. Bioinformatics *(Computational processing and analysis of genetic and proteomic data)*

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Advanced sub-modules *(elective)*

One of these is selected in association with the student's research project. The student will acquire a deeper level of insight into a specific field and will be equipped for further studies and a career in science.

1. Human Genetics
2. Immunology
3. Mycobacteriology
4. Data Science

Programme outcomes

At the completion of this programme, the student will:

1. understand concepts, research methodologies and techniques relevant to Molecular Biology and Human Genetics and apply this knowledge to answer a research question.
2. competently perform basic molecular biology procedures and use these skills to conduct research to answer a defined question.
3. appreciate the complexities and limitations of current molecular biology techniques and use this knowledge to inform experimental design
4. be equipped to analyse and critique scientific literature to identify current knowledge and inform experimental design
5. have developed their own initiative to acquire new knowledge and understanding and to generate strategies for solving research problems
6. understand basic statistical concepts and methods and be able to apply this knowledge appropriately to the analysis of data
7. be able to effectively communicate scientific concepts and research methods and results via oral and written presentations

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Assessment and examination

- You must pass both modules with a minimum of 50% to earn the applicable credits.
- If you do not pass the theory module with a minimum of 50% after the second opportunity, you will not be permitted to continue with the research project.
- Assessment opportunities include:
  - √ written examinations and coursework for each of the theory sub-modules
  - √ a project proposal, research report, research presentation, supervisor's report and written examination for the project module
- The calculation of the final mark is subject to the "Provisions Relating to Examinations and Promotion" set forth under the chapter "University Examinations" in Part I (General) of the Calendar.

Enquiries

Programme coordinator: Dr Jennifer Jackson

Tel: 021 938 9400

E-mail: jacksonj@sun.ac.za