

UUDLES - BSc and BSc Honours in Geography

The Bachelor of Science degree in Geography provides a solid foundation in understanding natural phenomena while achieving interdisciplinarity by including select courses in human geography, physics, chemistry and biology. This degree offers three key areas of concentration:

- Extreme environments
- Biophysical processes
- Geoinformatics

Topics in this program cover climatology, hydrology, biogeography, geomorphology, remote sensing and image processing, and GIS. All students are required to take in their first year introductory physical geography as well as introductory human geography. In addition to core courses, students may also take a wide range of electives within the natural sciences and social sciences. With emphasis on practical experience in field and laboratory settings, upper level courses provide a deeper understanding of natural environments and the physical and biological processes governing them. Upon successful completion of the program, students are well equipped for exciting careers in the public, private and voluntary sectors. Students can also further their academic development by proceeding to graduate work in Geography or related fields of study.

*** These items are reserved for Honours BSc.**

1. Depth and Breadth of Knowledge for BSc:

- 1.1 Exposure and basic grasp of both human and physical geography, demonstrating the inter-disciplinarity of Geography.
- 1.2 A basic (advanced*) understanding of the fundamental linkages and inter-dependencies amongst the atmosphere, hydrosphere, biosphere and lithosphere.
- 1.3 Develop a specialized knowledge base within sub-disciplines of physical geography.
- 1.4 Develop an advanced level of comprehension of key concepts such as space, time, equilibrium, measurement, modelling, accuracy, resolution, scale, process, pattern, systems, cycling, adaptation, extinction.
- 1.5 Develop an understanding of and demonstrated competence using the scientific method for advancing knowledge in physical geography.
- 1.6 Demonstrate an understanding of the roles of physics, chemistry and biology in shaping the natural environment.
- 1.7 Develop experience in the use of the outdoors as a natural laboratory.
- 1.8 Demonstrated competence in critical thinking skills.
- 1.9 Develop competence in analytical skills.
- 1.10 Develop both oral and written communications skills.

2. Knowledge of Methodologies of BSc:

- 2.1 Ability to generate maps from spatial data.
- 2.2 Ability to generate various graphs and visual representations.
- 2.3 Ability to analyse temporal and spatial data using spreadsheets, statistical packages and spatial analysis tools.
- 2.4 Ability to apply inferential statistics to collected data.
- 2.5 Practice (exposure*) in applied field experimentation (appropriate use of sensors and sampling methodologies and analytical procedures).
- 2.6 Understanding of the processes responsible for observed phenomena or patterns.
- 2.7 The ability to develop an autonomous research proposal, design an experiment, analyse collected data, and interpret results.*
- 2.8 Awareness of ethical and moral implications and procedures for research.*

3. Application of Knowledge of BSc:

- 3.1 The ability to understand processes responsible for phenomena and patterns in the natural environment (and then generate plausible outcomes under alternate scenarios*)
- 3.2 Ability to recognize advances in technology which can be applied to a sub-discipline in physical geography. *
- 3.3 The ability to think independently, creatively and analytically.
- 3.4 The ability to review, summarize and evaluate scholarly literature related to a sub-discipline of physical geography.
- 3.5 Ability to synthesize scientific literature from diverse sources in a coherent manner.*

4. Communication Skills of BSc:

- 4.1 The ability to comprehend and communicate geographic concepts and principles through original written work and class presentations.
- 4.2 The ability to engage in class discussions and debates.
- 4.3 The ability to demonstrate a high standard of oral, visual and written communication skills..
- 4.4 The ability to communicate respectfully with a diversity of opinions in the classroom.
- 4.5 The ability to use appropriate communication technologies.*
- 4.6 Develop an ability to communicate publicly.*

5. Awareness of Limits of Knowledge of BSc

- 5.1 The ability to acknowledge the diversity of disciplines that should be integrated for effective environmental problem solving.
- 5.2 A recognition of the limitations of diverse methodologies in the production of knowledge.*
- 5.3 A recognition of the range of differences between themselves and the general public in understanding the environment.*

6. Autonomy and Professional Capacity of BSc

- 6.1 Recognition of geography's centrality in understanding contemporary world concerns such as climate change, pollution, and resource depletion.
- 6.2 Critical and creative thinking, reasoning, communication, and problem-solving skills.
- 6.3 Recognition of potential errors and limitations.
- 6.4 Willingness to continue learning and applying knowledge to either create new knowledge or to solve existing problems
- 6.5 Competency with a range of software packages and other geographical technologies (eg. Remote sensing, satellite imaging, GIS mapping/software).*
- 6.6 Competence in developing and implementing original and inquiry-based research projects.*
- 6.7 Responsible and ethical scholarship*
- 6.8 Capacity for critical thinking, intellectual rigour, engagement with complexity*