GEOG3417  GIS Applications in Public Health

TIMETABLE ARRANGEMENT: Annual; 1st Semester  
CREDITS: 6  
CURRICULUM OPTION: [C, E, U&T]

COURSE TEACHER(S): Dr Keumseok (Peter) KOH

ASSESSMENT:

<table>
<thead>
<tr>
<th>EXAMINATION 40 %</th>
<th>COURSEWORK 60 %</th>
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<tr>
<td>1.5 hours</td>
<td>4 lab assignments (Labs #2-5) using ArcGIS</td>
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<tr>
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<td>1 personal final project using ArcGIS StoryMaps</td>
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OBJECTIVES:  
To stimulate interests in Geographic Information Systems (GIS) activities applicable for analyzing spatial health and medical data.

COURSE SYNOPSIS:  
All aspects of the natural, built, and socioeconomic environment may affect human health both individually and collectively. The idea of applying GIS techniques in health-related studies is not new. Indeed, GIS has been used for decades in the western countries to undertake assessment and control of environmental factors that can potentially affect health. This course explores how GIS is used to address and analyze pressing health problems from the geographical perspective. It covers such topics as theoretical and practical issues, simple disease mapping, disease pattern analysis, and environmental association through spatial modeling techniques. The course will be conducted in a series of lectures and hands-on practices (five computer-based exercises) in a problem-based learning environment. An examination requiring short-essay responses will be administered during the examination period.

LECTURE TOPICS:
- Introduction to GIS and some definitions
- Data Types and Health Records
- Disease mapping and spatio-temporal visualization
- Associative and geostatistical analyses

RECOMMENDED READING LIST:

Full titles of curriculum options:
- C = China
- E = Environment
- U&T = Urban & Transport

Curriculum Options:
- CO = Compulsory course for geography majors
- R = Courses directly related to the option of specialisation
- M = Course related to research methods
### Course Learning Outcomes (CLOs)
After completing this course, students would be able to:

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<th>Course Assessment Methods</th>
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<tbody>
<tr>
<td>1</td>
<td>understand some concepts in GIS and database management</td>
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<tr>
<td>2</td>
<td>know some GIS functions and limitations</td>
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<td>3</td>
<td>recognize GIS requirements and data privacy issues</td>
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<td>4</td>
<td>acquire GIS operational skills (ArcGIS, R)</td>
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<td>5</td>
<td>gain database management skills</td>
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<tr>
<td>6</td>
<td>apply map presentation and geostatistical analysis skills</td>
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### Alignment with Programme Learning Outcomes (PLOs)*

*Geography Major Programme Learning Outcomes (PLOs)*

In order to meet the demands and challenges in this dynamic and ever-changing world, the Department has designed a series of well-structured and contemporary courses to cater to the different interests of students. Its courses are designed to align with the University’s educational aims which hope to nurture future generations not only with a critical and intellectual mindset, but also with a passion to contribute to society in general.

After completing the programme, Geography Major students should be able to:

- **PLO1** critically analyse the geographical aspects of the relationship between people and the natural environment;
- **PLO2** demonstrate and develop an understanding of how these relationships have changed with space and over time;
- **PLO3** identify, collect and utilize primary and secondary data to investigate and analyse the issues and problems facing people, places and society;
- **PLO4** integrate, evaluate and communicate information from a variety of geographical and other sources;
- **PLO5** participate in promoting social, economic and environmental sustainability at the local, regional and global scales; and
- **PLO6** effectively apply a range of transferable skills in academic, professional and social settings.

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