

## Current GIS Education at Geography Departments in Japanese Universities

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### 1. Introduction

Since 1990, GIS in Japanese Universities has expanded widely beyond its status as a tool of individual researchers into the education field. However, since GIS education in Japan lags far behind the United States, the United Kingdom and several European countries, the development of GIS standard curriculum to enable the systematic education has become an issue. To answer this demand, the GIS curriculum working group of the Geographic Information Systems Association (GISA) in Japan formulated a preliminary core curriculum for GIS education at the university level in 2004.

In the process of curriculum development, it had become widely accepted that a proposal for the second curriculum should be discussed especially from the perspectives of geography and information science. To this end, the present paper describes the current status and recent trends in GIS education in geography departments of Japanese universities.

### 2. Research Content and Methods

This survey focused on universities with geography departments and the classes offered in the 2005 academic year. A questionnaire survey was conducted that included the class names, number of classes, lecture titles, content, grade of students taking the class, number of credits, and syllabus URL. Classes targeted for the survey were lecture or practical courses which included at least one class of GIS related content. As a result, the final data include classes which were not aimed at the acquisition of practical skills in GIS.

The universities selected for this survey were searched from the 2005 national guide to university faculties and departments, and from the GISA homepage. While some universities provided course syllabus information on their web sites in detail, others offer only limited information and many universities restricted access to members of their own university. Therefore, a questionnaire survey was carried out with the geography department representative of each university. As of the 1st of December 2005, we have received replies from 34 universities in total.

### 3. The Present Status of GIS Education in Japan

The questionnaire resulted with 174 classes that included both undergraduate and graduate classes. These were divided into three main fields: remote sensing, physical geography, and human geography. The features of the GIS education in each field were ascertained.

In the remote sensing field, 9 universities offered a total of 11 classes. The proportion of lecture courses and practical courses was approximately equal. One feature that characterized this field was that 85% of the classes were opened for specialists to acquire practical remote sensing and GIS techniques.

In physical geography, a sample of 23 classes from 10 universities was compiled. Compared to other fields, 57% of the classes were lecture-style, and 39% of the classes had three or less lectures that dealt with GIS. The main keywords in the course titles include geographic information, cartography, physical geography, and surveying.

Human geography offered the largest sample of classes out of the three fields, with 131 classes in 30 universities. The composition was a mixture of lecture and practical classes, or mainly practical classes, with GIS lectures given only five times or less in the half semester. It was found that the main focus of GIS education in human geography was on the acquisition of drawing skills and the creation of thematic maps.

### 4. Conclusion

Depending on the scale of the university, the number of teaching staff that can engage in GIS education is limited, as are the period of classes, and facilities. The creation of a GIS education curriculum suitable for various situations is indispensable. GIS education surveys and analysis are still ongoing, and we are also considering release the survey content on the Web in near future.