

UEP Policy and Planning Competency Grid

Course Name/Number: Intro to Remote Sensing UEP 294

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Semester: Fall 2009

a) Knowledge Competencies	Specific sub-competencies or examples as developed in this course
1. History, structure, function of urban and metropolitan settlements	
2. Economic influences on policy and planning (e.g. 'market' and 'polis' relationships)	
3. Environmental, social and cultural influences on policy and planning	
4. Understanding different roles in policy and planning	
i) Levels of government	
ii) Governance structures	
iii) Citizens and residents	
iv) NGOs	
5. History, theory and processes of policymaking	
6. History, theory and process of planning	
7. Implementation of policy and planning	

8. Evaluation of policy and planning	
9. Administrative and legal aspects of policy	
10. Administrative and legal aspects of planning	
11. Politics of policy and planning	

b) Skills Competencies	Specific sub-competencies or examples as developed in this course
1. Critical thinking	
i) Defining problem	Moderate focus – All students were required to choose and develop a final Remote Sensing project that requires them to define a problem first.
ii) Documenting the extent of a problem	
iii) Documenting the political and social context	
iv) Documenting the environmental and spatial context	Moderate focus - students were taught how to use a wide array of satellite datasets including optical and microwave (radar) imagery to map and analyze many environmental and community contexts (e.g., water resources in hyper-arid regions, ancient impact craters, image classification of land use/cover, change detection of urban and vegetation covers, image interpretation of natural surface properties using both very high and moderate spatial and spectral resolution satellite images).
v) Identifying possible analysis strategies and their implications	
vi) Identifying criteria for proposing solutions	
vii) Identifying criteria for selecting solutions	
viii) Evaluating the development and results of policies and plans	

2. Research skills	
i) Understanding research design	
ii) Collecting relevant literature	
iii) Analyzing relevant literature	
iv) Identifying and assessing data sources and limitations	Major focus – students were learned to search for different types of satellite images (publicly available and at no cost imageries), assess data relevance and quality, and document limitations for use. Particular emphasis is given to the US satellite Landsat system (including Landsat MSS, TM and ETM+).
v) Developing data collection instruments and tools	
3. Data Analysis skills	Major focus – students gained skills in space image interpretation. Particular emphasis is given to the interpretation of visible/near-infrared imagery (e.g., Ikonos, QuickBird, Aster) , Thermal/temperature data (e.g., Landsat and Aster TIR spectral bands), and Radar SAR imagery (e.g., Radatsat-1 and SIR-C SAR)
i) Interpreting and synthesizing data	
ii) Drawing inferences from specific observations to make	
iii) More generalizable findings	
iv) Comparative analysis	
v) Longitudinal analysis	
vi) Recognizing and accounting for limitations to findings	Requirement for the final project, and also repeatedly discussed in the class.
4. Qualitative Analysis skills	
i) Direct observation	
ii) Analysis of primary qualitative data	
iii) Analysis of secondary qualitative data	

5. Quantitative Analysis skills i) Descriptive statistics	Major focus – students used descriptive statistics in image processing, classification and image analysis (e.g., supervised and unsupervised accuracy assessments, change detection statistics and image enhancement histograms).
ii) Inferential statistics	
iii) Basic forecasting	
iv) Use of spreadsheets and statistical software	Moderate focus – in the Remote Sensing –GIS data integration class, students used spreadsheets to present their final statistic results.
6. Spatial Analysis skills i) Understand how to identify spatial problems and frame spatial questions for analysis and research	Major focus – This is the theme of the student assignments, presentation, paper and final project.
ii) Use Geographic Information System for basic spatial analysis and mapping	Moderate focus - Covered in the second part of the course particularly in the Remote Sensing-GIS data integration class. Students used such skills of RS-GIS integration in the preparation of their ppt presentation, paper and final project.
7. Communication skills i) Writing skills	Minor focus – For the final project, each student has delivered the following: <ul style="list-style-type: none"> - 15 minutes talk using a ppt. - A written short paper (~7 pages) - Poster to be presented in the Tufts GIS Expo event
ii) Speaking skills	Short presentation was one of the requirement for the final project
iii) Graphic presentation skills	Moderate focus – particularly in displaying results derived from image processing and final statistics.
iv) Presentation strategies and methods	Moderate focus – Poster design and production is required for the final projects. (First and third poster awards went to Remote Sensing students in the GIS Expo event)

c) Policy and Planning in Practice Competencies	Specific sub-competencies or examples as developed in this course
1. Collaboration skills i) Negotiation	
ii) Group project management	
iii) Group problem solving	
iv) Perspective-taking	
v) Adaptability, flexibility	
vi) Networking	
2. Organizational management skills i) Decision making	
ii) Strategic problem solving and adapting to change	
iii) Human resource development	
iv) Financial management and resource development	
3. Political and economic power mapping skills i) Understanding political and economic power structures and dynamics	
ii) Modes of influencing their use	
4. Ethical and professional behavior skills i) Understanding and upholding the role of ethics and accountability in professional policy and planning processes, practices, and behavior	

