Course Title: **Geographic Information System/ Geologic Problems**

Course Section: 26:375:602/21:460:325
Time and Place: Thursday. 6.00-9.00 PM, Smith Hall 127

Instructor: **Sweeta Chauhan**
Office: Smith Hall 142
Office Hours: Thursday 4.00-6.00 PM

Lab Book: GIS Tutorial: workbook for Arc View 9.3, Wilpen L. Gorr, and Kristen S. Kurland. Third Edition (ISBN 978-1-58948-205-0)

Reference Book: GIS Fundamentals: A first text on geographic information systems, 3nd edition, Paul Bolstad.

Course Overview:
This course is to give ample exposure to GIS software for visualizing, creating, managing, and analyzing geographic data. It provides the foundation for becoming an ArcGIS user. You will learn fundamental GIS concepts and become familiar with the range of functionality available in ArcGIS. In course exercises, we will work with ArcGIS and see how it provides a GIS software solution. This course is designed for those who are new to ArcGIS and to GIS in general.

Course Goals: Those completing this course will be able to
• Describe the structure of ArcGIS software.
• Display geographic data.
• Query a GIS database.
• Edit geographic data.
• Associate tables using joins and relates.
• Create maps, reports, and graphs.

Course Format: Brief introductory lectures will provide the basic information and background material to work on the labs; we will also discuss what was covered in the previous week. The main focus will be on class and homework assignments. **As we proceed with the class the assignment will be designed exclusively based on your interest and progress in the class.** You are also required to maintain personal lab note book. Submission deadlines for every home work, lab assignments, and project are given on the first day of class. **There is no late submission**.

Evaluation:
Class / Homework Assignments / Quiz: 30%
Mid Term 15%
Final 20 %
Project 30%
Class Participation/ Attendance 5%

Tentative Schedule:

DATE	TOPICS	LABS
SEPTEMBER		
Sept. 2	Overview of GIS	*Introduction ArcGIS and NJDEP-GIS data on ArcGIS*
Sept.9	ArcGIS & working with ArcMap	Introduction to ArcGIS & *Map Design*
Sept.16	Raster & vector data	*GIS output*
Sep. 23	Coordinate Systems and Map Projections	*Spatial data and projections*
Sep. 30	Geocoding	Geocoding
OCTOBER		
Oct. 7	Attribute data and tables, Data input	Importing Spatial and Attribute data & Digitization
Oct. 14	**Mid-term exam**	**Lab Mid Term**
Oct. 21	Working with Geodatabases	Geodatabases
Oct. 28	Queries, Spatial Joins, Map Overlay	*Spatial data processing*
NOVEMBER		
Nov. 4	Project Review	*Spatial analysis*
Nov. 11	Raster	*Raster data and analysis*
Nov. 18	DEM and Surface analysis	*Analyzing Network*
Nov 25	Data quality and errors	**Final exam**
Dec. 2	GIS trends and development	Final Presentation