Fall 2019

SET 303-101: Photogrammetry and Aerial Photo Interpretation

Huiran Jin

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SET 303 – Photogrammetry and Aerial Photo Interpretation

Fall 2019

Lecture Wed. 6–9 pm at CKB 214
Lab Thurs. 6–9 pm at GITC 2315A

Instructor Dr. Huiran Jin
Contact huiran.jin@njit.edu
(973) 596-3249

Office Hours Wed. 11 am –2 pm at GITC 2514 (or by appointment)

Course Structure (3-3-4) (lecture hr/wk - lab hr/wk - course credits)

Course Description This course reviews the principles of photogrammetry and remote sensing as they relate to engineering, land surveying and geographic information systems (GIS). This includes developing an understanding of the necessary optics, mathematics, image processing, and computer science fundamentals. Photographic and digital photogrammetry will be covered with an emphasis placed on the process of designing and establishing the required data for the acquisition of photogrammetric information according to standards and procedures.

Prerequisite(s) SET 200 or equivalent

Textbook & Required Materials
B. Technical Journal Articles.
C. Federal, State and Professional Standards/Procedures.

Computer Usage ERDAS Imagine, Microsoft Word, etc.

**Grading Policy**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lab</td>
<td>25%</td>
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<tr>
<td>Homework</td>
<td>20%</td>
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<tr>
<td>Quiz</td>
<td>10%</td>
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<tr>
<td>Midterm</td>
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<tr>
<td>Final</td>
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- **A** > 90
- **B+** 82–89.9
- **B** 75–81.9
- **C+** 70–74.9
- **C** 65–69.9
- **D** 60–64.9
- **F** < 60

**IMPORTANT NOTES:**

A. Attendance to every lab is required. Each student will be given a score by the Instructor of the lab session at the end of the semester based on the overall performance.

B. Homework should only be submitted electronically through CANVAS. Details on how you derived your answers must be shown.

C. Each homework is due ONE week from assignment. Answers and key steps to solve the problems will be posted after the due date. Unless approved by the Instructor before the deadline, late submission will not be accepted/graded and a zero will be assigned automatically.

D. Quizzes will consist of five (5) T/F or multiple choice questions. Students need to come to class to take the quizzes.

E. No makeup Midterm/Final exams will be provided unless students’ absence is approved by the Dean of Students.

F. Adjustments on the letter grade assignment and/or curving of the final scores might be applied based on the overall performance of the class.

**Academic Integrity**

NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. In the cases the Honor Code violations are detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on students’ permanent record. Avoid situations where honorable behavior could be misinterpreted. For more information on the honor code, go to [http://www.njit.edu/academics/honorcode.php](http://www.njit.edu/academics/honorcode.php).

**Student Behavior**

- Cellular phones must be turned off during the class hours – if you are expecting an emergency call, leave it on vibrate.
- Unless the Instructor allows the use of electronic devices (i.e. iPad, Computer) these should be closed/turn-off during lecture.
- You should try to be part of a discussion.
MODIFICATION TO COURSE

The Course Outline below may be modified at the discretion of the Instructor in the event of extenuating circumstances. Students will be notified in advance of any changes to the outline.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic of Lecture</th>
<th>Reading</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>1</td>
<td>9/4</td>
<td>• Introduction</td>
<td>Ch. 1,</td>
<td>#1</td>
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<tr>
<td></td>
<td></td>
<td>• Applications of Aerial Photography</td>
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<td>2</td>
<td>9/11</td>
<td>• Principles of Photography and Imaging</td>
<td>Ch. 2,3 App. A</td>
<td>#2</td>
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<td>• Imaging Devices</td>
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<tr>
<td>3</td>
<td>9/18</td>
<td>• Image Measurements and Refinements</td>
<td>Ch. 4,5</td>
<td>#3</td>
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<td>• Object Space Coordinate Systems</td>
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<td>4</td>
<td>9/25</td>
<td>• Vertical Photographs</td>
<td>Ch. 6</td>
<td>#4</td>
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<td>5</td>
<td>10/2</td>
<td>• Stereoscopic Viewing</td>
<td>Ch. 7,8</td>
<td>#5</td>
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<td>• Stereoscopic Parallax</td>
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<td>6</td>
<td>10/9</td>
<td>• Elementary Methods of Planimetric Mapping</td>
<td>Ch. 9</td>
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<td>7</td>
<td>10/16</td>
<td>• Tilted and Oblique Photographs</td>
<td>Ch. 10</td>
<td>#6</td>
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<td>• Review for Midterm</td>
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<td>8</td>
<td>10/23</td>
<td>• Midterm Exam</td>
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<td>9</td>
<td>10/30</td>
<td>• Analytical Photogrammetry</td>
<td>Ch. 11,12,13</td>
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<td>• Topographic Mapping and Spatial Data Collection</td>
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<td>10</td>
<td>11/6</td>
<td>• Digital Image Processing</td>
<td>Ch. 15</td>
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<td>11</td>
<td>11/13</td>
<td>• Project Planning</td>
<td>Ch. 18</td>
<td>#7</td>
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<td>12</td>
<td>11/20</td>
<td>• Laser Scanning Systems</td>
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<td>• Airborne LiDAR</td>
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<td>13</td>
<td>11/27</td>
<td>• Friday Classes Meet</td>
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<td>14</td>
<td>12/4</td>
<td>• Visit GEOD Corporation</td>
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<td>15</td>
<td>12/11</td>
<td>• Digital Resampling</td>
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<td>• Review for Final</td>
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<td>12/18</td>
<td>• Final Exam</td>
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