# Interpretation of Aerial Photographs

**Course title** | Interpretation of Aerial Photographs
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**Course number** | FRSC/GEOG 398
**Course date** | Fall Semester 2004 (August 30, 200 through December 7, 2004)
**Location** | Lecture: HFSB 105; Lab: Centeq B 214
**Meeting day(s)** | Monday & Wednesday
**Meeting time(s)** | Lecture MW: 12:40 - 1:30pm; Lab W: 2:00 - 4:50pm

## Instructor Information

<table>
<thead>
<tr>
<th>Name</th>
<th>Sorin Popescu</th>
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<tbody>
<tr>
<td>Email</td>
<td><a href="mailto:s-popescu@tamu.edu">s-popescu@tamu.edu</a></td>
</tr>
<tr>
<td>Office location</td>
<td>Centeq B 221D</td>
</tr>
<tr>
<td>Phone</td>
<td>862-2614</td>
</tr>
<tr>
<td>WebCT page</td>
<td><a href="https://webct.tamu.edu/">https://webct.tamu.edu/</a> (follow link to Course Listings or use MyWebCT Logon)</td>
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<tr>
<td>Office hours</td>
<td>Open door policy, when the door is open, though I recommend emailing for appointments. Please put “398” in the subject in email messages regarding this class to receive prompt attention. Please avoid “drop-ins” just before class on Monday and Wednesday.</td>
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## Course description

**Objectives**
- Introduce students to the principles, equipment, and techniques used to:
  - interpret aerial photographs and digital imagery
  - obtain reliable measurements and maps from aerial photographs and digital imagery, and
  - practically implement aerial photointerpretation in various disciplines.

The class emphasizes the need for being able to think in a spatial context for a variety of environmental applications.

## Textbooks

**Required reading**

**Supplemental text on reserve at West Campus Library**
Grading

<table>
<thead>
<tr>
<th>10 point brake-out system</th>
<th>90.0 – 100 = A Excellent</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>80.0 - 89.9 = B Good</td>
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<tr>
<td></td>
<td>70.0 – 79.9 = C Satisfactory</td>
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<tr>
<td></td>
<td>60.0 – 69.9 = D Passing</td>
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<tr>
<td></td>
<td>00.0 – 59.9 = F Fail</td>
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Laboratories 30 % All lab work is due at the beginning of the following lab period
Homework 10 %
Quizzes 10 % Will be administered through webCT
Midterm exam 20 % Wednesday, Oct. 13th, during lab
Final exam 30 % Monday, Dec. 13th, 10:30am – 12:30pm.

You will receive a registration block if checked out lab equipment is not returned before the day of the final exam.

Course outline

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>1</td>
<td>History of aerial photography; definitions of terms; electromagnetic</td>
<td>Chapter 1, part of Chapter 2</td>
</tr>
<tr>
<td></td>
<td>spectrum</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Geometry of vertical airphotos, principles of stereoscopic vision</td>
<td>Chapters: 2 and 3</td>
</tr>
<tr>
<td>3</td>
<td>Photogrammetry: scale of vertical airphotos; horizontal measurements</td>
<td>Chapters: 4 and 5</td>
</tr>
<tr>
<td>4</td>
<td>Photogrammetry: vertical measurements</td>
<td>Chapter 6 and 7</td>
</tr>
<tr>
<td>5</td>
<td>Digital imagery; orthophotography, map projections</td>
<td>Chapters: 8 and 9</td>
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<tr>
<td>6</td>
<td>GPS, GIS</td>
<td>Chapters: 10 and 12</td>
</tr>
<tr>
<td>7</td>
<td>Photo interpretation: human factors, films, filters</td>
<td>Chapters: 13 and 14</td>
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<tr>
<td>8</td>
<td>Photo interpretation: principles and techniques</td>
<td>Chapter 15</td>
</tr>
<tr>
<td>9</td>
<td>Land use, land cover</td>
<td>Chapters: 16 and 18</td>
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<tr>
<td>10</td>
<td>Geology, soil, engineering and environmental applications</td>
<td>Chapters: 17 and 19</td>
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<tr>
<td>11</td>
<td>Vegetation analysis, forestry applications</td>
<td>Chapters: 20 and 21</td>
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<tr>
<td>12</td>
<td>Natural resources inventory, statistics and sampling techniques,</td>
<td>Chapters: 22, 23, 24, 25</td>
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<tr>
<td></td>
<td>mapping accuracy</td>
<td></td>
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<tr>
<td>13</td>
<td>Introduction to remote sensing, history, sensors</td>
<td>Chapter 26</td>
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<tr>
<td>14</td>
<td>Active remote sensors: lidar and radar</td>
<td>Chapter 27</td>
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Laboratory schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Geometry of aerial photos, principal and conjugate point, stereo vision</td>
<td>Centeq B 214</td>
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<tr>
<td>2</td>
<td>Determining Distance, Angles, and Area using Air Photos</td>
<td>Centeq B 214</td>
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<tr>
<td>3</td>
<td>Height Determination from Air Photos I: Relief Displacement and Monoscopic Parallax</td>
<td>Centeq B 214</td>
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<tr>
<td>4</td>
<td>Height Determination from Air Photos: Stereoscopic Parallax</td>
<td>Centeq B 214</td>
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<tr>
<td>5</td>
<td>Field Collection of Global Positioning System (GPS) Data</td>
<td>Centeq B 214</td>
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<tr>
<td>6</td>
<td>Differential correction of GPS data</td>
<td>Centeq B 214</td>
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<tr>
<td>7</td>
<td>Midterm exam</td>
<td>TBA</td>
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<tr>
<td>8</td>
<td>Principles and techniques of aerial photo interpretation</td>
<td>Centeq B 214</td>
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<tr>
<td>9</td>
<td>Land-use/land-cover mapping using aerial photography</td>
<td>Centeq B 214</td>
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<tr>
<td>10</td>
<td>Digital spatial data sources: DEM, DOQQs, DRG, DLG</td>
<td>Centeq B 214</td>
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<tr>
<td>11</td>
<td>Finding GIS Data Layers and Viewing them in ArcView 8.1</td>
<td>Centeq B 214</td>
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<tr>
<td>12</td>
<td>Onscreen digitizing</td>
<td>Centeq B 214</td>
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<tr>
<td>13</td>
<td>Map accuracy assessment</td>
<td>Centeq B 214</td>
</tr>
<tr>
<td>14</td>
<td>Review of laboratory topics</td>
<td>TBA</td>
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Laboratory, Homework, and Exam policy

The University policy on Scholastic Dishonesty will be enforced in this course. While you are encouraged to help each other understand concepts and techniques, all work submitted should be your own. Exceptions to this policy will be explicitly noted by the instructor and should not be assumed by students. Make-up exams will not be offered. If you are going to miss an exam for a valid reason (per University rules), contact the instructor well in advance.

All laboratory and homework assignments are to be completed in a neat, logical, and clear fashion. A 10% reduction in grade will be assessed for each weekday a lab or homework assignment is handed in late (up to a 50% reduction). Assignments late more than one week will not be accepted without documented excuse (family or medical emergencies). All lab work is designed to be completed in class.
Aggie Code of Honor

*Aggies do not lie, cheat, or steal, nor do they tolerate those who do.*

The Aggie Code of Honor functions as a symbol to all Aggies, promoting understanding and loyalty to truth and confidence in each other.

**Prerequisites:** good academic standing

**Required laboratory supplies**

- Engineer’s scale
- Plastic overlays: clear acetate, dura-lar, mylar
- Overlay marker (permanent): extra/ultra fine point, such as Sharpie Extra Fine Point, Pilot, Pentel, etc. Colors: black, green, blue, red.
- Drafting tape (small roll, not masking tape!)
- Protractor (reading to the nearest degree)
- Binder clips

Optional: pins (with plastic handle), eraser, ruler, calculator

**Americans with Disabilities Act**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Office of Support Services for Students with Disabilities in Room 126 of the Student Services Building. The phone number is 845-1637.