

GEOGRAPHY 382 - AERIAL PHOTO INTERPRETATION

Spring 2014

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Office hours: Tues. 10:30-12:30, and Thurs. 10:30-11:30 & 2:30-3:30, or by appointment.

In this course we will survey the basic characteristics of aerial photos and develop skills for their interpretation. Our inquiry will cover aspects of the aerial photographic process, geometric and visual photo attributes, and procedures for ground feature identification, analysis, and mapping. Optional Text (available on reserve at Zuhl Library): *Aerial Photography and Image Interpretation for Resource Management*, D. P. Paine, 1981, John Wiley and Sons, New York.

<u>Week</u>	<u>Lecture and Lab topics</u>
1/16	No Class, <i>No Labs</i> .
1/21	Introduction (Ch. 1), Historic Background; <i>No Labs</i> .
1/27	The Aerial Photo Process (Ch. 6), Stereoscopy (Ch. 3), <i>Lab 1: Maps and Photos</i> .
2/3	Stereoscopy (Ch. 3); Geometric Characteristics (Ch. 2, 4, 5); Photo Features, <i>Lab 2: Stereograms</i> .
2/10	Aerial Photo Interpretation (Ch. 13), <i>Lab 3: Photomosaics</i> .
2/17	Aerial Photo Interpretation (Ch. 13), <i>Lab 4: Interpretation Logs</i>
2/24	Additional Photo Features (Ch. 13), <i>Lab 5: Change Detection</i> .
3/3	Aerial Photo Interpretation Continued, <u>Mid-Term Lab Tests (3/5 & 3/6)</u> .
3/10	REVIEW, <u>Mid-Term Lecture Exam (3/13)</u> , Labs: <u>Term Project Introduction</u>
3/17	Social Structure, <i>Map Projects/Open lab</i> .
3/24	<i>Spring Break</i>
3/31	Landform Identification (Ch. 14, 15), <i>Map Projects/Open lab</i> .
4/7	Landform Identification, <i>Map Projects/Open lab</i> .
4/14	Landform Identification, <i>Map Projects/Open lab</i> .
4/21	Applications of Aerial Photography (Ch. 15-21).
W 4/23	<u>TERM PROJECTS DUE !!!</u>
4/28	Applications of Aerial Photography.
5/7	No Final Exam.

Your final grade will be based on a percentage of the following total points:

Mid-term lecture exam	= 100 pts.
Mid-term lab test	= 100 pts.
Five formal labs (@ 20 points)	= 100 pts.
Photomap project	= 150 pts.
Total	450 points

Final grades will be evaluated based on the following scale: (There is no curve.)

A+ = 100% to 95%	B- = < 84% to 80%	D = < 67% to 64%
A = < 95% to 93%	C+ = < 80% to 77%	D- = < 64% to 60%
A- = < 93% to 90%	C = < 77% to 74%	F = < 60% to 0%
B+ = < 90% to 87%	C- = < 74% to 70%	
B = < 87% to 84%	D+ = < 70% to 67%	

**** EXAMS MAY NOT BE TAKEN EARLY FOR ANY REASON. ****

**** EITHER the mid-term lecture exam or the mid-term lab test can be made-up, but not both. Only ONE of these can be missed and made-up during the semester, the other will count for zero points. The makeup must be scheduled with Dr. Dugas within one class day of the missed event. If you do not reschedule by the next class period you not be allowed a makeup! ALL ASSIGNMENTS MUST BE TURNED IN ON TIME. LATE ASSIGNMENTS WILL BE ASSESSED A PENALTY OF 20% OFF FOR EACH HOUR LATE AFTER THE TIME/DATE DUE.**

- **Academic dishonesty** will not be tolerated and anyone found cheating on an examination or quiz will be given **zero** points for that exam or quiz. Additional sanctions may also be applied. The current Student Code of Conduct definition of plagiarism can be found at: <http://www.nmsu.edu/~vpsa/SCOC/misconduct.html>. Students who engage in disruptive activities in an academic setting (e.g., classrooms, academic offices or academic buildings) are subject to disciplinary action in accordance with Section IV. Such students are also subject to administrative actions in accordance with the NMSU Graduate and Undergraduate Catalogs."
- **Add/ Drops** - The deadline for registration/course additions is January 28, 2014. The last day to drop a course with a W (except courses carrying designated dates) is March 11, 2014. The last day to Withdraw from the university is April 17, 2014. Students are responsible for withdrawing from class. The instructor will not withdraw a student for not attending class or not completing the course.
- Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact: Trudy Luken, Director, Student Accessibility Services (SAS), Corbett Center, Rm. 244, **Phone:** (575) 646-6840, **E-mail:** sas@nmsu.edu, **Website:** www.nmsu.edu/~ssd/ NMSU policy prohibits discrimination on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex, sexual orientation, spousal affiliation and protected veterans status. Furthermore, Title IX prohibits sex discrimination to include sexual misconduct, sexual violence, sexual harassment and retaliation. For more information on discrimination issues, Title IX or NMSU's complaint process contact: Gerard Nevarez, Executive Director or Agustin Diaz, Associate Director, Office of Institutional Equity (OIE), O'Loughlin House, **Phone:** (575) 646-3635, **E-mail:** equity@nmsu.edu **Website:** <http://www.nmsu.edu/~eeo/>

AERIAL PHOTO INTERPRETATION (GEOG382)

COURSE DESCRIPTION:

An introduction to the use and interpretation of aerial photographs with an emphasis on recognition of physical features and cultural spatial patterns; including a survey of the basic characteristics of aerial photos, photo attributes, and procedures for ground feature identification, analysis, and basic mapping.

ENABLING COMPETENCIES: Student will gain knowledge of...

- the historic background of aerial photography.
- applications of aerial photography.
- the aerial photographic process (flight strips, end-lap, mosaics, photo-missions, etc.).
- principles of stereoscopy and stereograms.
- photo-interpretation instruments.
- photo-geometric characteristics (scale, scale variation, distortion, etc.).
- photo features (fiducial marks, dates, index numbers, etc.).
- photo rectification and elevation modeling.
- the combined use of maps and aerial photos.
- traditional principles of aerial photo interpretation (recognition of tonal variation, texture, pattern, shadows, etc.).
- interpretation logs and coverage sampling techniques.
- landform identification and basic terrain analysis.
- the recognition and analysis of cultural features.
- temporal change detection techniques.

TERMINAL COMPETENCIES: students will be able to:

- demonstrate a general knowledge of aerial photography applications.
- describe the aerial photographic acquisition process.
- correctly use photo-interpretation instruments (stereo glasses and mirror scopes) to view photosets stereoscopically.
- calculate photo scales using map comparison and flying-height techniques.
- correlate aerial photo and map coverages.
- describe and interpret aerial photographs using appropriate terminology using fundamental photo characteristics such as tonal variation, texture, pattern, shadows, etc.
- formulate an interpretation log and conduct basic coverage sampling and statistical analysis.
- identify geomorphic landforms and describe basic terrain attributes.
- recognize, describe, and analyze cultural features.
- demonstrate basic photo rectification and elevation modeling utilizing computer programs.
- produce basic photomaps (non-technical photogrammetry).
- detect and map temporal changes in landscape features.