Course Description

*From the Course Catalog:*
This capstone course of the Cybersecurity Track discusses the use of space-based assets to support the Homeland Security effort. Included are the limitations of the technologies, available commercial technologies, and the discussion of the legal, moral, and political issues surrounding the use of these technologies in a democratic society. Students will design and present a project as part of this course.

*Additional information:*
As would be expected, the majority of information on specific capabilities of space based and aerial observation assets is either highly classified by associated governments, or closely held proprietary information of private corporations. Much of the materials presented in this course come from interpolation of signature analysis based on public information. We do our best with the information available to us. This course attempts to provide enough information to the students so that they can grasp the fundamental capabilities and limitations of signature collection assets, the political, legal, and moral ramifications of governments collecting this data, and the potential vulnerabilities of these assets and data to compromise.

*Required materials (i.e. textbooks, software, etc.)*

*National Security Intelligence*
Author: Johnson, Loch K.
ISBN: 9780745649405
Copyright Year: 2012
Publisher: Polity Press

Available at [Amazon.com](http://www.amazon.com) as well as [other online booksellers](http://www.amazon.com).

*Technical Collection of Intelligence*
Author: Clark, Robert M.
ISBN: 9781604265644
Copyright Year: 2011
Publisher: Congressional Quarterly Press

Also available at [Amazon.com](http://www.amazon.com) as well as [other online booksellers](http://www.amazon.com).
**Prerequisites**

There are no prerequisites for this course, however students are expected to have some background in cyber security to be able to succeed in this course.

**Technical skills required for the course**

As with any online courses students must be able to operate a computer and have the necessary technical skills to navigate around a web page.

**Time spent on this course**

The time needed for adequate study and understanding of the course material, as well as discussion posts and critical thinking for all exercises and papers amounts to between six and seven hours per week.

A number of videos are included in this course. Students should plan on watching videos and taking notes on the materials so they can better understand the processes by which space imagery functions.

The time a student spends studying for the mid-term exam will vary dependent upon the student’s understanding and comprehension of the reading assignments and materials associated with the first 4 lessons.

**Goals, Objectives, and Outcomes**

In general, Goals are where you want to go, Objectives are how you get there, and Outcomes are proof that you've arrived. The various governing documents are pretty vague on these, so it’s likely that you don’t have to provide all three in your syllabus.

**Course Goals**

The material included in this course is intended to provide students with a grasp of the capabilities and limitations of space based and aerial data collection assets. The controversy over pervasive surveillance of citizens, and targeting of people in other countries, are a continuing problem that students will be able to address when they complete this course. Students will be able to collect open source information from space based and aerial assets and conduct analysis of the imagery.

**Course Objectives**

1. Critical thinking is key to conducting signature analysis. This course builds critical thinking skills.
2. After the mid-term over the specifics of signatures, collection history and capabilities, students will shift their focus to analysis and policies. Teaching the concept that technological development drives policy is a core objective of this course.
3. Being able to effectively gather data, analyze that data, and provide an appropriately technical and critical written analysis is a core objective of this course.
4. Being able to read, comprehend, and critically analyze the communications of others is essential in today's world. Therefore, participation in the discussion boards is an essential component of this course.

**Learning Outcomes**

When you complete this course, you should be able to:

- **Knowledge and comprehension**: identify and recognize various space imagery technical devices and the signatures associated with their ability to collect signatures.
- **Application and analysis**: demonstrate the ability to analyze signature collection capabilities and apply them to current issues.
- **Synthesis and evaluation**: evaluate and critique the ideas of others based on your own synthesis of the presented materials.

**Method of Assessing Outcomes**

Student learning outcomes will be assessed through a combination of written assignments and active participation in the cohort discussions established through weekly discussion board questions.

Additionally, comprehension of technical components of space imagery will be assessed through a mid-term exam.

A writing assignment will provide the means to assess student grasp of the concepts of space imagery and the analysis of the data imagery provides.

**Grades**

Your grade will be based on the following:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
<th>Due</th>
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<tbody>
<tr>
<td>Discussion Board</td>
<td>35%</td>
<td>Weekly</td>
</tr>
<tr>
<td>Paper</td>
<td>35%</td>
<td>Week 8</td>
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<tr>
<td>Mid Term Exam</td>
<td>30%</td>
<td>Week 5</td>
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<tr>
<td>Total</td>
<td>100%</td>
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Angelo State University employs a letter grade system. Grades in this course are determined on a percentage scale:

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A = 90 - 100 \%
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B = 80 - 89 \%
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C = 70 - 79 \%
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D = 60 – 69 %
F = 59 % and below.
Final Exam

This course does not require a final examination, as such, but does require a submitted paper. This paper will be due on Thursday of Lesson 8.

Course Outline

Lesson 1: Introduction, the history of utilizing space to collect signatures, remote sensing, and the electromagnetic spectrum.

Lesson 2: Film images, Radiometry, and Digital Imagery.

Lesson 3: Infrared, RADAR, and SAR collection platforms and capabilities.

Lesson 4: RF and non-EM Signature Collection

Lesson 5: Cyber espionage, covert action, and the morality of individual choice versus national policy are considered. **Mid-Term Exam on Thursday & Friday.**

Lesson 6: Preventing abuse of all encompassing imagery.

Lesson 7: Analyzing imagery.

Lesson 8: Course wrap-up. **Final paper due on Thursday.**

The instructor reserves the right to modify the syllabus during the semester as needed.

Administration

Communication

Students are expected to participate regularly through the course discussion forum. Students may receive occasional emails from the course instructor and are expected to respond promptly.

This is an asynchronous course. Students are expected to complete assignments and participate in the discussion boards by the scheduled dates.

This is an online course and attendance is not taken. However, failure to participate or communicate on the part of a student will result in an appropriate reduction of your grade and possibly in your failure of this course.

Late work

This is an 8-week course. There is insufficient time in a short semester for students to delay completion of assignments. Therefore late work will not be accepted. If your assignments are not submitted by the posted deadline, you will receive a zero for that assignment. [Individual faculty may modify this policy in cases of student extremis.]
Policy on incompletes

From the ASU Catalog:
The grade “I” is given when the student is unable to complete the course because of illness or personal misfortune. An “I” that is not removed before the end of the next long semester automatically becomes an “F”. Students will be allowed one year to remove a grade of “I” before it automatically becomes an “F”. To graduate from ASU, a student must complete all “I”s.

The University policy on grades of "Incomplete" is that the deficiency in performance must be addressed satisfactorily by the end of the next long (16 week) semester or the grade automatically becomes a "F". Grades of "Incomplete" will only be awarded to students who have demonstrated sufficient progress to earn the opportunity to complete the course outside of the normal course duration. The award of an "Incomplete" will only be made in rare circumstances, with the concurrence of the student and the professor on what specific tasks remain and when they are due for the grade to be changed to a higher grade. The determination of the need to award an "Incomplete" is entirely up to the professor’s personal judgment.

Add/Drop dates
Students may add this course up to August 29, 2013.
Students may drop this class or withdraw from the university until September 4, 2013.

University Policies

Academic Integrity
Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding and complying with the university Academic Honor Code and the ASU Student Handbook.

Accommodations for Disability
The Student Life Office is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student's responsibility to initiate such a request by contacting the Student Life Office at (325) 942-2191 or (325) 942-2126 (TDD/FAX) or by e-mail at Student.Life@angelo.edu to begin the process. The Student Life Office will establish the particular documentation requirements necessary for the various types of disabilities.

Student absence for religious holidays
A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.