Lecture: Rm. C-229 @10:30 am MWF
Instructor: Dr. Dean Johnson homepages.wmich.edu/~johnson
Office: Rm. B-228 West Parkview
Email: johnson@wmich.edu
Hours: MWF 9:30 to 10:30 a.m. or some afternoons after 1:30 p.m.

Course Objective
The course will examine the means by which telemetry, command and tracking are done between spacecraft and earth-borne antennas through a systems approach. The telecomm hardware of several current and past planetary observational platforms will be examined. In addition, basic remote sensing concepts will be presented to help understand the science objectives and visualization constructs of these missions. The Mars Exploration Rovers telecom and imaging systems will be examined in detail. This course will satisfy Concentration Area#2 in the ECE graduate program or a 4000 ECE Elective in the ECE UG program.

Materials Used in Class:
1. **Connect HW & Exam system:** Go to [http://connect.mcgraw-hill.com/class/ece-5950-22349](http://connect.mcgraw-hill.com/class/ece-5950-22349) & press REGISTER NOW. Type the email address and password to create an account. The online access costs $70 (free for 14 days) unless used in another course.
2. **Clicker:** REEF polling app on iPhone/Android/laptop is required (~$10/sem). Physical remote is not used here.
3. **On-line course materials:**
      i. Principle Textbook: "Deep Space Telecommunications System Design" (see, by Joseph Yuen (5th item from top)
      ii. Descanso Book Series
      iii. Design and Performance Summary Series
   b. **Remote Sensing Area:**
      Notes by van Zyl at [http://www.its.caltech.edu/~ee157/](http://www.its.caltech.edu/~ee157/)
   c. **Visualization Area:**
      i. Solar System 3D models: [http://solarsystem.nasa.gov/eyes/](http://solarsystem.nasa.gov/eyes/)
      ii. Google Earth View->Explore->Mars
      ix. iPhone/Android Apps: Earth-Now, Spacecraft 3D
   d. **Science Objectives and Background:**
      i. Ustream video: [http://www.ustream.tv/nasajpl](http://www.ustream.tv/nasajpl)
4. Additional References:
   a. WolframAlpha Online computational engine by Wolfram Research
   d. Camera Lenses, from Box Camera to Digital by Gregory Smith (SPIE Press, 2006)

Grading: View on Elearning (gowmu.edu -> Elearning tab -> ECE 5950 link). The following preliminary grade scale shall be used.

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<th>Component</th>
<th>Weight</th>
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<tr>
<td>Exam I (Mid)</td>
<td>35%</td>
<td>91 - 100</td>
<td>A</td>
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<tr>
<td>HW Problems</td>
<td>15%</td>
<td>86 - 90</td>
<td>BA</td>
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<tr>
<td>Reports</td>
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<td>80 - 85</td>
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<td>Exam II (Final)</td>
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<td>100%</td>
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<td>iClicker</td>
<td>~3% (bonus)</td>
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WMU Honesty Policy: Attempting to obtain credit for work (lab, hw, reports, exams) done by somebody else is illegal and punishable in this class. You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate/Graduate Catalog that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. 
http://catalog.wmich.edu/content.php?catoid=24&navoid=974