

ASEN 5335 Aerospace Environment Course Syllabus Spring 2019
12 Jan 2019, V 1.1

Instructor: Prof. Delores Knipp

Text: Understanding Space Weather and the Physics Behind It (USW)

| DATE | TOPIC | READING | OTHER | ALT READING |
|-----------|-------------------------------|-------------------------|---|-----------------|
| Mtg 1 | Introduction/Disturbances | USW Ch 1 & Ch 6.1 | Review Ch 2 | |
| Mtg 2 | Sun-1 Structure | Ch 3.1-3.3 | http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-11-00179.1 | VLP 5.1-.3, 5.6 |
| Mtg 3 | Sun-2 Active Emissions | USW 5.1.1 & 9.1 | http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-16-0191.1 | VLP 5.4-5.5 |
| Mtg 4 | Sun-3 Magnetism& Eruptions | USW 9.2 & 10.1-10.2 | | VLP 10.6 |
| Mtg 5 | Upper Atmos-1 Structure | USW 3.4.1 & 8.1 | HW 1 Due | VLP 12.1-7 |
| Mtg 6 | Upper Atmos-2 Ionosphere | USW 3.4.2 & 8.2 | | VLP 13.1-4 |
| Mtg 7 | Upper Atmos-3 Disturbances | USW 8.1 & 12.2 | | VLP 13.5 |
| Mtg 8 | Upper Atmos-4 Disturbances | USW 8.3 & 14.1-14.2 | HW 2 Due | |
| Mtg 9 | Solar Wind-1 Quiet | USW 4.3.1 & 5.2 | | VLP 9.3 |
| Mtg 10 | Solar Wind-2 Disturbed | USW 10.1-10.2 | http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-16-0204.1 | Proless 6 |
| Mtg 11 | Geomagnetism-1 | USW 7.1 | | |
| Mtg 12 | Geomagnetism-2 | USW 7.2 | HW 3 Due | |
| Mtg 13 | Guest Lecture | | | |
| Mtg 14 | Rad Belt-1 Particle Dynamics | USW 6.1-6.2 | Exam 1 Due | VLP 10.1-3 |
| Mtg 15 | Rad Belts- Particle Dynamics | USW 7.3 | | |
| Mtg 16 | Magnetosphere-1 Structure | USW 4.3.1 & 4.4 & 7.4 | HW-4 Due | VLP 9.1-4 |
| Mtg 17 | Magnetosphere-Quiet | USW 11.1-11.2 | | VLP 10.1-3 |
| Mtg 18 | Magnetosphere-Disturbed | USW 11.3 | | Proless 5 |
| Mtg 19 | Rad Belts-3 Disturbances | USW 9.3 & 10.3 | | |
| Mtg 20 | Radiation Effects-Penetrating | USW 13.1.1-13.1.2 | HW-5 Due | VLP 11.1-4 |
| | Spring Break | | | |
| Mtg 21 | Radiation Effects-Penetrating | USW 13.1.3 | | VLP 11.5-6 |
| Mtg 22 | Radiation Effects-Charging | 13.3 & Supplement | | VLP 11.6-7 |
| Mtg 23 | Debris | USW 13.2 & Supplement | Exam-2 Due | VLP 15.1-4 |
| Mtg 24 | Drag & Orbits-1 | USW 13.1.4 & Supplement | | VLP 15.5-8 |
| Mtg 25 | Drag & Orbits-2 | Supplement | | |
| Mtg 26 | Iono-Thermo-1 Structure | USW 12.1 Review 11.3 | HW-6 Due | Proless 7 |
| Mtg 27 | Iono-Thermo-2 Quiet | USW 8.4 & 12.2 | Journal Review | Proless 8 |
| Mtg 28 | Iono-Thermo-3 Disturbed | USW 13.3 & 14.3 | | |
| Mtg 29 | Iono-Thermo-4 Disturbed | Supplemental Reading | | |
| Mtg 30 | Review and Summary | Lloyds Report Sp Wx | HW-7 Due | |
| Early May | Final | Due date is estimated | Final Exam Due | |

Key: Upper Atmos—Upper Atmosphere, Rad Belts—Radiation Belts,
Iono-Thermo—Ionosphere-Thermosphere

VLP=Space Environment and Its Effects on Space Systems, Vincent Pisacane
Proless = Physics of the Earth's Space Environment: An Introduction, Gerd Proless