

Altitude and Aerospace Physiology

Kinesiology 484

Section: D100

Term: 2005 Fall

Instructor: Dr. Andrew Blaber

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Discussion Topics: Lectures (2 hours): Tuesday: 8:30-10:20 - AQ 5046

Discussion group: (1 hour): Thursday: 8:30-9:20 - AQ 5046

Laboratory (3 hours): Tuesday: 14:30-17:20 - K8640

The theme of this course is human physiology in environments of high G-force, weightlessness, and decreased atmospheric pressure. The course will deal with acute and chronic adaptations to these environments as well as life support systems and "countermeasures" developed to expand the envelope of human performance. Developments of breathing apparatus and G-suits for high performance aircraft will be examined as they relate to solving the physiological problems of exposure to these environments. Effects of short and extended periods of weightlessness on cardiovascular, musculo-skeletal, neural, hormonal and vestibular systems will be explored. Topics covered include (not necessarily in this order):

G-Physiology

Orthostatic responses

-Syncope

-Hypo- and Hyper-G

-G-tolerance

-Anti-G manouevres

-G-suit technology

-Push-Pull effect

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Weightlessness

Acute responses

-Space Adaptation Syndrome:

---Vestibular (oculomotor)

---Cardiovascular

---Neural (CNS),

---Hormonal,

---Musculo-skeletal.

-Orthostatic intolerance

-Countermeasures

Altitude

Hypoxia and hypoxemia

-Respiration and pulmonary function

---Systemic, cerebral & pulmonary circulation

-Blood/Plasma volume

-Mountain sickness

Grading: Midterm - 20%

Laboratory Reports* - 40%

Discussion group (participation, reports and presentations) - 10%

Final Exam - 30%

* Course assignments must be handed in by the due date to receive full grade (late work will be assessed a penalty of 5% per day. After one week a zero will be entered).

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Required Texts: Custom Courseware: Blaber A.P. Altitude and Aerospace Physiology.

Lab Manual: Distributed in class.

Recommended Texts:

Materials/Supplies:

Prerequisite/Corequisite: PREREQUISITES: Kin 305, Kin 306, RECOMMENDED: Kin 407

Notes: A medical certificate is required for any students taking High Altitude Physiological Training as a component of the Altitude Physiology Laboratory. Physicians may charge a fee to complete the form.

Failure to attend an examination

Students who miss examinations due to exceptional circumstances (such as serious illness or compassionate reasons) are required to obtain a physician's certificate, whereby the physician states that you were unable to write your midterm or final on the set date due to a medical condition beyond your control, or other supporting documents in order to obtain consideration in the course. Such documents must be filed with the School Director (via the Kinesiology office) or Registrar within four calendar days of the date on which the examination was to have been written. Exceptional circumstances must be approved by the Undergraduate Program Committee in order for a student to receive consideration.

Students must check the exam schedule when making course selections. Students are reminded that final examinations may be scheduled at any time during the examination period and that students should avoid making travel or employment arrangements for this period.

Academic honesty and student conduct

Academic honesty is a condition of continued membership in the University community.

Academic dishonesty, including plagiarism or any other form of cheating is subject to serious academic penalty, i.e. failure on an assignment, failure in a course, suspension or expulsion from the University.

The University codes of student conduct and academic honesty are contained in policies T10.01 and T10.02 which are available in the Course Timetable and on the Web via <http://www.reg.sfu.ca>.

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