

ST-Altitude & Aerospace Physiology

Kinesiology 424

Section: D100

Term: 2001 Spring

Instructor: Prof. Andrew Blaber

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Discussion Topics: VECTOR: 2-0-3 (2 hours lecture, 3 hours lab)

Lectures:

Wednesdays - 14:30-15:20 - AQ 5027

Fridays - 14:30-15:20 - SCB 8666

Labs:

Mondays - 9:30-12:20 & 13:30-16:20 - SCB 8654

The theme of this course is human physiology in environments of: decreased atmospheric pressure; high G-force; and, weightlessness. 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, cerebrovascular, musculo-skeletal, neural, hormonal and vestibular systems will be explored. Topics covered include:

Part I: G-Physiology

Orthostatic responses

Syncope

Hypo- and Hyper-G

G-tolerance

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Anti-G manoeuvres

G-suit technology

Push-Pull effect

Part II: Weightlessness

Acute responses

Space Adaptation Syndrome:

Vestibular (oculomotor)

Cardiovascular/Cerebrovascular,

Neural (CNS),

Hormonal,

Musculoskeletal

Orthostatic intolerance

Countermeasures

Part III: Altitude

Hypoxia and hypoxemia

Respiration and pulmonary function

Systemic, cerebral & pulmonary circulation

Blood/Plasma volume

Mountain sickness

Breathing apparatus

Grading: EVALUATION:

Midterm 20%

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Laboratory Reports* 40%

Research paper* 10%

Final Exam 30%

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

Required Texts: Hultgren H.N. High altitude medicine. Hultgren Publications, Stanford, CA 1997.

Recommended Texts:

Materials/Supplies: COURSE FEES:

A Fee of \$20 is assessed to cover supplementary materials.

Prerequisite/Corequisite: PREREQUISITES:

60 credit hours including: Kin 305, Kin 306

Notes: Lecture will start January 5th. and the Labs will start Jan. 8th.

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 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.

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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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