

**KIN**nected

## Physiology of Fitness Appraisal

The course is divided into 4 chapters. There are several lectures in each chapter.

The chapters (in order) are:

1. Body composition
2. Skeletal Muscle Composition: Fibre Type, Glycogen and Metabolic Capacity
3. Coupling of metabolism, cardiac output, and respiration during exercise
4. ECG and heart function
5. CSEP-PATH (Physical Activity Training for Health)

Upon completion of this course, students will understand the physiological basis of fitness appraisal and be able to apply this knowledge and safely perform the following fitness appraisal tests (see Lab Topics below):

Lab Topics

Pre-screening (questionnaires, RHR and RBP)
Height, Weight, Waist Circumference, Skinfolds and BIA
Aerobic Fitness (MCAFT, YCMA cycle ergometer and Ebelling treadmill tests)
MSK Fitness (sit and reach, vertical jump, one leg stance, grip strength, push up, forearm plank and y-balance test)
ECG

Required Course Material/Text:

All required readings will be announced in class and posted on OWL.

Recommended Text : CSEP-PATH Manual

(Professor Mike Herbert will be offering the CSEP -Path Certification for those Interested)

Course Evaluation:

Evaluation:

1. Mid-term: Wednesday October 26, 5:30-6:15 pm, 2022 (20%)
2. Practical Exam: Weeks of November 14 and 21, 2022 (30%)
3. Completion of Data collection in labs. (5%)
4. Final exam: TBA during December exam period. (45%)

- o A missed mid-term examination, without app -0 0 12pp -0 0r(i)6.3 (at)6.2 (a )15. doemia cion

**Lecture outline:**  
**Physiology of Fitness Appraisal**  
**Chapter 1**

**Introduction: Our World and Body Composition**

**I. Body Composition: Energy Expenditure**

A. Metabolism: RQ

**B. Body Composition:**

1. Behnke Classification Schema

2. Summary of Behnke Model

**Article**

**Effects of training duration on substrate turnover and oxidation during exercise**

- A.
  - 1. Fatigue
  - 2. Dyspnea
  - 3. Pain

**B. (Continued) Physiology related to Test protocols that measure Maximum Oxygen Consumption (  $\dot{V}O_2$  max tests).**

- 1. Substrate Utilization
- 2.  $O_2$  cost of work
- 3. Lactate Increase and Anaerobic Threshold
- 4. Kinetics

- III. A. Dysfunction of the Cardio Respiratory Systems

- V. The interplay between Science and the Application of the Science.

**Article**

**Monitoring high intensity endurance exercise with heart rate and thresholds**

Marcel R Boulay, JA Simoneau, Gilles Lortie, Claude Bouchard  
Med Sci Spt Ex. Vol 29, No1, 12632

**Chapter 4  
ECG/EKG**

- I. **History**
- II. **Rhythmic Excitation of the Heart**  
1. *The heart as excitable tissue.*  
2. *Action Potentials*

Figure: 1. Evolution of PQRST.  
2. Limb leads.  
3. Augmented limb leads.  
4. Precordial leads.

- III. **EKG Interpretation**  
1. Rate  
2. Rhythm  
3. Axis  
4. Hypertrophy  
5. Infarction

1. **Rate**  
a. Ectopic Foci.  
b. Rate :  
c. Atrial Fibrillation
2. **Axis:**
3. **Infarction:**
4. **Blocks:**
5. **Rhythm:**

**Chapter 5  
CSEPPATH Certification**

- I. **Determinants of Health**
- II. **Role of Appraiser**
- III. **Health Benefits**
- IV. **Changing your lifestyle**  
A. Understanding Behaviour Change  
B. Structure of Self Esteem

- C. SE affects Behaviours:
- D. Factors inherent in SE:
- E. Self Esteem effected by perceptions:
- F. Self esteem is Learned
- Unconditional Acceptance
- Conditional Acceptance
- Bottom Line Concept

V. **Factors Affecting Participation in Physical Activity  
(change/growth)**

- A. Reasons for activity:
- B. Beliefs:
- C. Attitudes
- D. Intentions:

VI. **Process or Stages of Change**

VII. **Counseling**  
Issues requiring referral to experts

VIII. **Goals:**

IX. **CSEP – History – Advise – Relapse – Case Studies**



distract other students from learning. From time to time, your professor may ask the class to turn off all computers, to facilitate learning or discussion of the material presented in a particular class. Unless explicitly noted otherwise,

documentation is to be submitted to academic counsellors within five (5) business days of their return to academic responsibilities. Any such documents will be retained in the student's file, and will be held in confidence in accordance with the University's Official Student Record Information Privacy Policy. Once the petition and supporting documents have been received and assessed, appropriate academic considerations shall be determined by academic counseling, in consultation with the student's instructor(s). Academic considerations may include extension of deadlines, waiver of attendance requirements for classes/labs/tutorials, arranging Special Exams or Incompletes, re-weighting course requirements, or granting late withdrawals without academic penalty. Academic considerations shall be granted only where the documentation indicates that the onset, duration and severity of the illness are such that the student could not reasonably be expected to complete their academic responsibilities. (Note – it will not be sufficient to provide documentation indicating simply that the student “was seen for a medical reason” or “was ill.”).

Whenever possible, students who require academic considerations should provide notification and documentation in advance of due da

6. Online Proctoring

Tests and examinations in this course may be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded . Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

7. Grades

Where possible assignment objectives and rubrics will be posted on OWL.

Generally, students can expect some form of feedback on their performance in a course before the drop date.

November 12th, 2022 (for first term half-courses)

November 30th, 2022 (for full-year courses)

March 7th, 2023 (for second term half-or full year courses)

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work that is clearly above average
B	70-79	Good work, meeting all requirements and eminently

A request for relief against a mark or grade must be initiated with the instructor as soon as possible after the mark is issued. In the event that the instructor is not available to the student, or fails to act, or if the matter is not resolved satisfactorily with the instructor, a written request for relief must be submitted to the Chair of the Department within three weeks of the date that the mark was issued. In the case of a final grade in a course, the written request for relief must be submitted to the Chair of the department by January 31<sup>st</sup> (for first-term half courses) or June 30<sup>th</sup> (for second-term half courses or full-year courses)

8. Support Services

Health and Wellness:

Information regarding health and wellness-related services available to students may be found at <http://www.health.uwo.ca/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<http://www.health.uwo.ca/>) for a complete list of options about how to obtain help.

There are various support services around campus and these include, but are not limited to:  
~~Student~~ Student Development Centre