NORTHWESTERN POLYTECHNIC

DEPARTMENT OF KINESIOLOGY AND HEALTH SCIENCES

COURSE OUTLINE – WINTER 2024

PE2060(A3): BIOMECHANICS 3 (3-0-1) UT, 60h, 15 weeks

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation, and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land, and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTORS:

- Fabio Minozzo**:** phone-780-539-2058/email- fminozzo@nwpolytech.ca / office K219

OFFICE HOURS: upon student request

CLASS TIMES:
Lectures: Tuesdays & Thursdays, 10:00-11:20
Labs: Fridays, L1, 8:00-8:50, L2, 9:00-9:50

CALENDAR DESCRIPTION: The course presents a method of quantitative and qualitative analysis of human movement based on a knowledge of biomechanical principles.

DELIVERY MODE(S): A variety of methodologies will be employed including lecture, discussion, lab activities, seminars group/ individual work. This course will be mostly delivered **in class** (or in the lab) with some online components. Students are recommended to bring their own laptop or tablet besides their textbook and notebook.

POLICY ON THE RECORDING OF TEACHING ACTIVITIES: Students may not record classroom activities (such as lectures, group activities, 3rd party presentations, etc.) without instructor's consent. This policy is set to protect the privacy and reputation of students, to uphold the copyrights of the instructor and other content creators, and to facilitate free and open discussion of ideas. The classroom is meant to be a psychologically safe environment, where students are free to explore and think through new and controversial ideas without fear of public repercussions. Recording lectures can undermine this goal. If permission to record an activity is granted, the recorded material can only be used for the student's own private use and is not to be posted online or otherwise distributed. Students will be notified in advance by the instructor when someone has been granted permission to record a classroom activity. Students will also be given the option of being excused from actively participating in recorded activities. In the case of student presentations, the recording student must show proof that the presenting student(s) have agreed to be recorded before the instructor will grant permission.

POLICY ON INSTRUCTIONAL RESOURCES AND MATERIALS: Any course resource/material should be properly used: the content created by your instructor is his/her intellectual property and is provided to you based upon your registration for this class; as such, the material is for your private use only. It is not to be distributed, publicly exhibited, or sold without the permission of the instructor. Third party materials (such as assigned readings, videos, et cetera) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law.
**Note: posting instructional personal notes or slides before or after classes is at discretion of your instructor.*

PREREQUISITE: PE1000

REQUIRED TEXT/RESOURCE MATERIALS:
McGinnis, P. 2013. Biomechanics of sport and exercise, (3rd or 4th ed). Windsor: Human Kinetics.

LEARNING OUTCOMES:

1. Explain the importance of biomechanics in the analysis of sport and exercise.
2. Describe Newton's laws of motion and how they apply to exercise and sport.
3. Differentiate between kinetic and kinematic quantities for both linear and angular motion.
4. Describe the effects fluid mechanics water and air on motion.
5. Implement the procedures of a Qualitative Biomechanical Analysis to improve performance, reduce injury and improve training

PE2060 BIOMECHANICS WINTER 2024 SCHEDULE (Tentative)					
Tuesdays	**TOPIC**	**Thursdays**	**TOPIC**	**Fridays**	**LABS / SEMINARS**
9-Jan-24	Intro to the course	11-Jan-24	Ch1 Forces	12-Jan-24	No labs
16-Jan-24	Ch1 Forces	18-Jan-24	Ch1 Forces	19-Jan-24	L1 - Forces
23-Jan-24	Ch2 Linear Kinematics	25-Jan-24	Ch2 Linear Kinematics	26-Jan-24	L2- Linear Kinematics
30-Jan-24	Ch 3 Linear Kinetics	1-Feb-24	Ch 3 Linear Kinetics	2-Feb-24	L3 - Linear Kinetics
6-Feb-24	Review Seminar	8-Feb-24	**TEST I (Ch1,2,3)**	9-Feb-24	No Labs
13-Feb-24	Ch4 Work, Power, Energy	15-Feb-24	Ch4 Work, Power, Energy	16-Feb-24	L4 - Energy
20-Feb-24	***Winter Break***	22-Feb-24	***Winter Break***	Feb 21 or 22	***Winter Break***
27-Feb-24	Ch5 Torque	29-Feb-24	Ch5 Torque	1-Mar-24	L5 - Torque
5-Mar-24	Review Seminar	7-Mar-24	**TEST II (Ch 4,5)**	8-Mar-24	No Labs
12-Mar-24	Ch6 Angular Kinematics	14-Mar-24	Ch6 Angular Kinematics	15-Mar-24	L6 - Angular Kinematics
19-Mar-24	Ch7 Angular Kinetics	21-Mar-24	Ch7 Angular Kinetics	22-Mar-24	L7 - Angular Kinetics
26-Mar-24	Ch8 Fluid Mech	28-Mar-24	Ch8 Fluid Mech	29-Mar-24	Easter (no labs)
2-Apr-24	Review Seminar	4-Apr-24	**TEST III (Ch 6,7,8)**	5-Apr-24	No Labs
9-Apr-24	Qualitative Analysis	11-Apr-24	General Review	12-Apr-24	Review Lab
16-Apr-24	**EXAM PERIOD**	18-Apr-24	**EXAM PERIOD**	19-Apr-24	Exam Period

COURSE SCHEDULE TENTATIVE TIMELINE:

**Note: Some of these dates may vary to facilitate student learning*

EVALUATION:

Test I	15%
Test II	15%
Test III	15%
Labs	25%
Final Exam	30%
	100%

GRADING CRITERIA:

Alpha Grade	4-point Equivalent	Percentage Guidelines	Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	95-100	C+	2.3	67-69
A	4.0	85-94	C	2.0	63-66
A-	3.7	80-84	C-	1.7	60-62
B+	3.3	77-79	D+	1.3	55-59
B	3.0	73-76	D	1.0	50-54
B-	2.7	70-72	F	0.0	00-49

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page http://www.transferalberta.ca.

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

STUDENT RESPONSIBILITIES:

Refer to the Polytechnic Policy on Student Rights and Responsibilities on the NWP website.

STATEMENT ON ACADEMIC MISCONDUCT:

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available at https://www.nwpolytech.ca/about/administration/policies/index.html.

**Note: all Academic and Administrative policies are available on the same page.