Acknowledgement of Indigenous Peoples and Traditional Territories:

York University recognizes that many Indigenous nations have longstanding relationships with the territories upon which our campuses are located that precede the establishment of York University. We acknowledge our presence on the traditional territories of the Mississaugas of Credit First Nation, the Huron-Wendat, the Haudenosaunee Confederacy and the Métis Nation of Ontario.

Faculty of Health School of Kinesiology and Health Science

Course: KINE4240 3.0 M – Applied Human Factors **Course webpage:** eClass

Term: Winter 2023

Prerequisite/Co-requisite: HH/KINE 3020 3.0 – Skilled Performance and Motor Learning; or

SC/BIOL 4370 3.00 – Neurobiology; or

HH/PSYC 3250 3.00 - Neural Basis of Behaviour

COURSE DIRECTOR

TEACHING ASSISTANT

Arash Jalalipour

Dr. George Mochizuki Email: gmochizu@yorku.ca

Email: arashj47@my.yorku.ca

Office: 363 Bethune College, x22202

Office hours: Wednesdays from 9-10:00am OR contact through email to schedule an office meeting or Zoom

call at a different time.

TIME AND LOCATION

Lectures: Tuesdays – 2:30 - 4:00pm – CLH 110 (Curtis Lecture Hall Seminar Room) Thursdays – 2:30 – 4:00pm – ACW 204 (Accolade West)

*remote/in-person delivery will follow the University's directives based on public health guidelines. If there is a need to return to online learning, a Zoom link will be created for this course and be made available on eClass

HEALTH AND SAFETY

For in-person learning, all university community members must comply with York's health and safety protocols, found on the *Better Together* website. All are encouraged to:

- wear masks while indoors on campus;
- self-screen using the *YU Screen* tool prior to coming to campus for any in-person activities; and
- **NOT** attend in-person activities at any of York's campuses/locations if feeling unwell or if you answer yes to any of the screening questions.

All members of the York community share in the responsibility of keeping others safe on campus and ensuring respectful interactions with one another.

Please Take Care of You and Each Other:

We continue to deal with the impact of COVID-19 and its far-reaching consequences. Please be kind to yourselves and others. There are a number of online free resources available to help support you. If you need help, the following list of websites (this is not an exhaustive list) may be a good place for you to start: https://good2talk.ca/

https://counselling.students.yorku.ca/

https://yubettertogether.info.yorku.ca

https://yorkinternational.yorku.ca/

TECHNICAL REQUIREMENTS FOR TAKING THE COURSE

The primary platform that will be used in this course is eClass. Students will be able to interact with the course materials, the Course Director, TA, and one another. Please review the syllabus to determine how the class meets (in whole or in part) and how office hours and other interactions will be conducted. The content of this course will be delivered in-person. In the event that the University returns to remote learning, we will continue to meet synchronously on Zoom.

If classes are held over Zoom, students shall note the following:

- Zoom is hosted on servers in the U.S. This includes recordings done through Zoom.
- If you have privacy concerns about your data, provide only your first name when you join a session.
- The system is configured in a way that all participants are automatically notified when a session is being recorded. In other words, a session cannot be recorded without you knowing about it.

Technology requirements and FAQs for eClass can be found here: https://lthelp.yorku.ca/95440-student-faq

Useful links describing computing information, resources and help for students:

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Student Guide to eClass/Moodle	https://lthelp.yorku.ca/student-guide-to-moodle
Computing for Students Website	https://student.computing.yorku.ca/
Student Guide to eLearning at York University	http://elearning-guide.apps01.yorku.ca/
Learning Skills Services	https://lss.info.yorku.ca/online-learning/
Zoom@YorkU User Reference Guide	http://staff.computing.yorku.ca/wp- content/uploads/sites/3/2012/02/Zoom@YorkU-User-Reference- Guide.pdf
Zoom@YorkU Best Practices	https://staff.computing.yorku.ca/wp- content/uploads/sites/3/2020/03/Zoom@YorkU-Best- Practicesv2.pdf

COURSE DESCRIPTION

Human Factors is the interdisciplinary field between neuroscience, biomechanics, physical activity, and human performance. This course discusses human factors (i.e. sensory, perceptual, motor and cognitive systems) and how they influence performance of a specific task (occupation, activities of daily living) within a particular environment (residence, workplace). Ultimately, this course aims to identify internal and external factors, barriers, and strategies that limit/enhance an individual's ability to participate in daily tasks.

LEARNING OBJECTIVES

The purpose of this course is to:

- introduce students to current models for characterizing interactions between individuals and their environment;
- provide students an opportunity to recognize the processes by which human behavior is influenced by task demands;
- discuss challenges to optimized task performance and strategies for overcoming these challenges.

LEARNING OUTCOMES

By the end of this course, students will:

- be familiar with concepts related to how humans detect and process environmental cues to optimize task performance;
- describe how tasks can be adapted to align with individual limitations to facilitate participation; and
- identify factors that challenge and augment the ways in which humans interact with their environment.

COURSE TEXT/READINGS

There is no designated textbook for this course. The required readings for this course will mostly include relevant journal articles. This supplementary material may also include videos and content from websites. Links to this content will be provided in eClass.

CONTENT DELIVERY AND AVAILABILITY OF LECTURE MATERIAL

KINE4240 will take place in person, on campus according to the Registrar's posted schedule. Students are encouraged to attend lectures in person. Lecture notes will be made available for every class. These will be posted to eClass prior to the start of the scheduled lecture time. Lectures will also be recorded and posted to eClass; however, in-class group activity discussions which link to course content and which develop skill in preparation for writing the midterm tests and final paper (see Formative Assessment on Page 4) will not be included in the recordings.

EVALUATION

Final Grade:

The final grade for the course will be based on the following items weighted as indicated:

- Discussion board contributions: 15%
- Test 1: 25%
- Test 2: 25%
- Final paper Case study: 35%
- 1. <u>Discussion board contributions</u>: The overarching theme of this course is the interaction between the individual, task, and environment in the context of physical activity, disability, and daily life activities. The content of this course and the lecture schedule (below) is divided into 3 Modules: Individual (Weeks 2-4), Task (Weeks 5-7), and Environment (Weeks 9-13). One of the evaluative components of this course is the **extent** and **quality** of your contributions in asynchronous online discussion forums in 3 Modules, which correspond to the 3 sections of course content. These discussion forums will allow for interactions related to content by all students at their own pace in smaller groups. You will be assigned to a new group for each Module to facilitate interaction with different students in the class.

Each Forum will begin with a paper, video or other online content which must be read/watched. Prompts or questions will be provided to get the conversation started. Follow up prompts/questions will be provided by the Facilitator (the TA) throughout the Module. At the end of each Module, we will have a synchronous overview in class of the themes raised in the discussion forums. Recall - the class will be divided into small groups and each group will have different content to focus on. Thus, each group's asynchronous discussions will be different. You can complete the Module at your own pace, but you will not be able to move on to the next module or add to the previous Module until/after the next Module begins (after we have completed the Module recap - see schedule below). The synchronous overview at the end of each Module is a way to integrate the different discussion themes into a cohesive set of ideas that relate to the content delivered during the lectures.

Your grade for this component will reflect the **extent** and **quality** of your contributions in the forums. **The grading rubric for the Modules is below**. Each Module makes up 5% of your final grade (15% total).

2. Examinations: There will be 2 in-class tests during the term. The tests must be written on the date and time noted in the lecture schedule.

The format of the tests will be essay style questions based on a case study presented in the test. Students must apply the knowledge they have developed to answer questions related to the case. On the specified

date, all students will receive the exam at the same time and will be given a **1.5 hour window** to complete the exam.

Questions will be related to weekly lecture content and discussion forum readings. Test 1 will focus on content from Module 1 and Test 2 will focus on content from Module 2. Knowledge of Module 3 content will be assessed in the Case Study (below). An unofficial list of grades will be posted on the course website as soon as they become available.

Each test is worth 25% of your final grade.

3. Case study: One way to demonstrate learning is to apply course-specific knowledge to solve a problem described in a specific case or scenario. The application of in-class knowledge to real-world scenarios facilitates opportunities to translate knowledge into action, similar to what you will do when you transition into the workforce upon completion of your degree. For this exercise, students will develop the details of the case and will develop a question/problem based on the case that is to be addressed. Students will then provide a detailed description of how the problem will be addressed, based on the relevant information that was taken into consideration to address the problem. As an example, if you describe the case of a 38-year-old woman who experienced a mild electrical shock while being treated with electrical muscle stimulation for lower back pain, you would consider the human factors considerations that led to shock occurring in the context of a conceptual model we discuss in class, how they could have been avoided and what steps were taken in the physiotherapy clinic to ensure that this did not happen again.

The report should be no more than **10 pages** in length (left justify, double spaced, 12pt Times New Roman font, 2.5cm margins) with **1 extra page** for a title page (title, names, date of submission, student IDs) and **unlimited additional** pages for references (minimum of 15 appropriate references). Include a running header (top left) and page numbers (bottom right) on all pages. In-text referencing should follow AMA style (https://owl.purdue.edu/owl/research_and_citation/ama_style/index.html). Do not cite course material in your paper. Peer-reviewed research papers should be the primary source for evidence. Note: Case studies will be submitted through Turnitin on eClass.

You will be required to submit a summary of your case study on the designated date (see schedule below) to verify that your topic is appropriate for the assignment. The summary will be 1 page (double spaced) and includes the title of the paper. You will not be penalized for not submitting a summary, but if your topic is inappropriate/not aligned with the course, you will be penalized as per the grading rubric below (page 8-9).

The grading rubric for the Case Study is below. The Case Study comprises 35% of the final grade.

Formative assessment - in-class group work: During most of the classes, we will engage in activities that are meant to get you thinking about concepts we will cover that day (called 'Assess your Knowledge' – at the start of class) and to reinforce concepts covered in class (called 'Apply your Knowledge' – at the end of class).

These activities will generally take the form of case studies, which will help develop skill in preparation for your midterm tests and final paper. You will work with the same group of people for the duration of the term to work through the Assess your Knowledge and Apply your Knowledge activities. At the end of Weeks 2, 3, 5, 6, 10, 11, you may submit your Assess your Knowledge and Apply your Knowledge notes/answers material. This content could include your group's typed notes, handwritten brainstorming notes, photographs of work completed on the blackboard/whiteboard, etc. You will get feedback as to whether your answers were correct or incorrect for your own knowledge and learning (some of this will be provided during our in-class conversations). ***Assess your Knowledge and Apply your Knowledge discussions will NOT be included in lecture recordings***

Grading: The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+=9, A=8, B+=7, C+=5, etc.). Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g. A+=90 to 100, A=80 to 90, B+=75 to 79, etc.) (For a full description, see the York University Undergraduate Calendar: http://calendars.registrar.yorku.ca/pdfs/ug2004cal/calug04 5 acadinfo.pdf)

An appeal against a grade assigned to an exam must be made in writing to the Course Director. The entire exam will be regarded by the Course Director. The result of an appeal may cause the grade to increase, decrease or remain the same.

Assignment Submission: Proper academic performance depends on students doing their work not only well, but on time. Accordingly, assignments for this course must be received on the due date specified for the assignment. The Case Study will be handed in through Turnitin on the course eClass by 11:59pm EDT (or EST, as appropriate) on the date specified in the course schedule (below). Discussion board contribution deadlines will be 11:59pm EDT (or EST, as appropriate) on the dates specified in the specific forum activity in the schedule below.

Lateness Penalty: Written assignments received later than the due date will be penalized one-half letter grade (1 grade point) per day that assignment is late. Exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be entertained by the Course Director but will require supporting documentation (e.g., a doctor's letter). Exams received outside of the allotted time limit will be penalized one-half letter grade (1 grade point) every 2 minutes outside of the allotted time limit. There are no lateness penalties for Discussion Forum activities; however, your grade for the Discussion Forum in each Module is partially dependent on the number of contributions made while the Forum is available.

RE-EVALUATION POLICY

During the term: Any requests for remarking of in-class tests must be received in writing by the Course Director within 7 days of the item's mark being posted. Note that your mark may be **raised, lowered, or confirmed.**

Re-appraisal of a final grade: Any requests for re-appraisal of a final mark must be received by the Course Director within 7 days of the final grade posting. Please note that your mark may be **raised**, **lowered**, **or confirmed**. For further details, go to: https://myacademicrecord.students.yorku.ca/grade-reappraisal-policy.

MISSED TESTS

Only students with a legitimate reason for missing a test (illness, compassionate grounds, etc.), may request accommodation from the Course Director. If a test is missed, a make-up test will be scheduled at a mutually agreed upon date and time during the Final Exam period. If a student misses a test with no legitimate excuse or does not contact the Course Director about scheduling a make-up test, the student will receive a grade of zero for the missed test. Further extensions or accommodation will require students to submit a formal petition to the Faculty.

IMPORTANT INFORMATION FOR STUDENTS

Academic Honesty and Integrity: York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty (https://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.

Please familiarize yourself with the meaning of academic integrity by completing SPARK's Academic Integrity Module here: https://spark.library.yorku.ca/academic-integrity-what-is-academic-integrity/. Breaches of academic integrity range from cheating (i.e. the improper crediting of another's work, the representation of another's ideas as your own, etc.) to aiding and abetting (helping someone else to cheat). All breaches in this

course will be reported to the appropriate university authorities and can be punishable according to the <u>Senate</u> Policy on Academic Honesty.

Access/Disability: York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University. Students in need of these services are asked to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs. Additional information is available at the following websites:

Counselling & Disability Services - https://counselling.students.yorku.ca// York Accessibility Hub - https://accessibilityhub.info.yorku.ca/

Religious Observance Accommodation: York University is committed to respecting the religious beliefs and practices of all members of the community and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test pose such a conflict for you, contact the Course Director within the first three weeks of class.

Student Conduct in Academic Situations: Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at: https://secretariat-policies.info.yorku.ca/policies/disruptive-andor-harassing-behaviour-in-academic-situations-senate-policy/. All participants in the course, teaching staff and students, will conduct themselves in a thoughtful and sensitive manner.

York University reaffirms its commitment to provide an environment conducive to freedom of enquiry and expression where all members of the community may learn, teach, work and live, free from prejudice, inequality and discrimination based on race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, religion, sex, sexual orientation, gender identity, gender expression, age, marital status, family status or disability.

York is committed to policies that support the teaching and learning of controversial subject matter. Students and instructors are, however, expected to maintain a teaching and learning environment that is safe and conducive to effective teaching and learning for all concerned, and to be civil and respectful at all times within the learning environment, including within classrooms, laboratories, libraries, study halls and other places where academic activities are conducted and in areas proximate to those where academic activities are taking place.

Lecture Schedule – Winter 2023 Tuesday/Thursday, 2:30 – 4:00pm

DATE	TOPICS
Week 1	T – Introduction and syllabus review
(January 9)	Th – Integrated Systems Model: an overview
Week 2	T – Sensory systems
(January 16) (formative evaluation)	Th – Perception
Week 3 (January 23)	Th – Cognition
(formative evaluation)	T – Motor systems
Week 4 (January 30)	T – Module 1 recap and test prep session
(Forum 1 due Jan 30)	Th: Test 1
Week 5 (February 6)	T – Task analysis
(february 6) (formative evaluation)	Th – Injury and error by repetition
Week 6 (February 13)	T – Stability
(formative evaluation)	Th – Mobility
Week 7 (February 20)	Reading Week – no class
Week 8	T – Manipulation
(February 27) (Forum 2 due Feb 29)	Th - Module 2 recap and test prep session
Week 9 (March 6)	T – Test 2
	Th – Work and health for a changing population
Week 10	
(March 13) (March 18 – last day to drop	T- The Silver Tsunami
course without receiving a grade)	Th – Environmental variations
(formative evaluation)	
Week 11 (March 20)	T– Human factors/error in industry
(Case study summary due March 24)	Th - Universal design
(formative evaluation)	THE OTHER COSTS OF THE COSTS OF
Week 12	T – User-centered design
(March 27)	Th – No class - away at conference
Week 13 (April 3)	T - Assistive devices
(Forum 3 due April 5; Case reports due April 7)	Th – Module 3 recap

Case Study Grading Rubric

Category	Scale
Background/ introduction	 3=provides adequate introduction to the overarching theme/problem, is within the scope of the course, and appropriately develops a problem to solve. The case is a reflection of the problem in the context of the overarching theme. 2= provides non-specific background information that does not tie in well to the course. The presented problem does not fully link to the background. 1= provides a very generic background. The presented problem does not align with the background. 0= provides an inappropriate background and/or was very difficult to read and/or understand. No problem is identified. The topic is not relevant to the course.
Human factors problem including in the context of a conceptual model discussed in the course	 3= thorough, relevant, and understandable statement of the problem that clearly identifies a relevant conceptual model discussed in the course. 2= generic information provided, provides some description of the problem, may or may not discuss all information relevant to the case. 1= some relevant information is missing or unclear; very wordy and does not communicate effectively the exact primary issue at hand. 0= no relevant information provided concerning this human factors problem, issue was not identified, and/or was very difficult to read and understand.
Findings/ analysis	 3= provides a stepwise temporal outline that details the objective findings based on an assessment conducted within the structure of the case. 2= provides incomplete but orderly objective findings but the specific assessment is not identified. 1= provides a few random objective findings. 0= very difficult to read or understand basic objective findings.
Factors contributing to the problem	 3= provides a thorough description of the factors that led to the human factors problem and relates this to the findings/analysis. These factors are drawn from the conceptual model and described/elaborated on in greater detail. 2= provides an incomplete description of the factors that led to the human factors problem and relates this to the findings/analysis. 1= provides an incomplete description of the factors that led to the human factors problem and does not relate the description to the findings/analysis. 0= does not describe the factors that led to the human factors problem.
Solution/ intervention/ recommendations	 3= provides a final solution/set of solutions/recommendations along with a chronological and detailed list of interventions based on the literature 2= provides a minimum amount of information specific to interventions or does not list interventions in a precise, chronological order. 1= provides a generic, non-detailed summary of solutions provided. 0= provides no real solutions or interventions nor a legitimate timeline.
Expected outcomes from intervention	 3= provides a strong case as to why this set of solutions is likely to be effective. 2= provides a weak case as to why this set of solutions is likely to be effective or fails to make a compelling case as to why this approach will be effective. 1= fails to provide evidence as to why this set of solutions is likely to be effective or claims that the approach is unproven or novel. 0= does not expand upon why the approach will be effective.

Conclusion	 3= provides a clear and concise summary of the facts of the case study as well as what can be learned from this case. 2= provides a wordy or overly-summarized summary of the case. 1= provides information that does not adequately summarize the case. 0= fails to provide a real conclusion to the case study.
Formatting	 3= Thoroughly follows formatting guidelines as outlined for case study. 2= Generally follows formatting guidelines with minimal errors. 1= Submits case study with several significant formatting errors. 0= Fails to adhere to general formatting requirements.
References	 3= Thoroughly follows formatting guidelines as outlined for case study (Minimum of 15 references in AMA format. No more than 2 are from grey literature/websites. Remaining are from peer-reviewed literature) 2= Generally follows formatting guidelines with minimal errors. (at least 15, but 1 other issue) 1= Submits case study with several significant formatting errors. (less than 15, multiple other issues) 0= Fails to adhere to general formatting requirements. (no references)
Grammar	 3= No grammatical/spelling errors. 2= Minimal grammatical/spelling errors (e.g. < five errors). 1= Several significant grammatical/spelling errors (e.g. > five errors). 0= Case study is difficult to read due to the level of grammatical/spelling errors.
Quality of writing	 3= Uses clear and coherent writing style consistent with professional writing standards: sentences can stand alone, solid flow, professional terminology. 2= Generally clear writing with minimal deviation from professional writing standards. 1= Several significant deviations from professional writing standards. 0= Often incomprehensible writing style due to significant deviation from professional writing standards.

Formatting a Case Study: The clinical case study will be evaluated for content using the above qualifications, along with formatting requirements as follows: no more than **10 pages** in length (double spaced, 12pt Times New Roman font, 2.5cm margins) with **1 extra page** for a title page (title, names, date of submission, student IDs) and **unlimited additional** pages for references (minimum of 15 appropriate references). Include a running header (top left) and page numbers (bottom right) on all pages. In-text referencing should follow AMA style (https://owl.purdue.edu/owl/research and citation/ama style/index.html). Do not cite course material in your paper. Peer-reviewed research papers should be the primary source for evidence. Note: Case studies will be submitted through Turnitin on eClass.

Grading of the Case Study:

Main case study body (21 points)
Formatting (3 points)
References (3 points)
Grammar (3 points)
Quality of writing (3points)
Total possible points: 33 points

Discussion Forum Grading Rubric

5 points: Fully participated; <u>questions and comments were insightful</u> and to the point; recognized and respected others' rights. You must participate in the discussion on at least <u>4 separate days</u> during the entire Module to receive 5 points.

2.5 points: Participated occasionally (minimum 3 separate times during the entire Module) or submissions were not thoughtful or well-developed; comments and questions were generally appropriate but not well thought out or did not demonstrate knowledge of or interest in the reading assignment.

1 point: Participation was brief (minimum 2 separate times during the entire Module) or consisted only of agreement with others' comments, or comments were rude or otherwise inappropriate.

0 points: No participation occurred.