

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 A – Applied Human Factors

Course webpage: eClass

Term: Fall 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

Dr. George Mochizuki
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Office hours: Wednesdays from 9-10am OR contact through email to schedule an office meeting or Zoom call at a different time.

TEACHING ASSISTANT

Arash Jalalipour
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TIME AND LOCATION

Lectures: Tuesday 2:30-4:00pm – DB1005 (Dahdaleh Building)
Thursday 2:30-4:00pm – HNE033 (Health, Nursing, and Environmental Studies)

*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

Please Take Care of You and Each Other:

We all face stressors and anxiety in our lives. 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://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 or meetings 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:

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, ergonomics, engineering, 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 within a particular environment.

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 take place at the start and end of every class which link to course content and 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.**

A note on lecture recordings – lecture recordings are to be used for educational purposes only and as a means of enhancing accessibility. Students **do not** have permission to duplicate, copy, or distribute the recordings outside of class. These acts can violate copyright laws, the Freedom of Information and Protection of Privacy Act, and intellectual property rights. Copying this material for distribution may lead to a charge of misconduct under York's Code of Student Rights and Responsibilities and the Senate Policy on Academic Honesty and/or legal consequences for violation of copyright law if copyright law has been violated.

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. **Discussion board contributions:** The overarching theme of this course is the interaction between the individual, task, and environment in the context of work, physical activity, 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 5-8), 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 an **80 minute 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 hand/arm injury when the forklift she was driving at work collided with a shelving unit, resulting in box placed on the top shelf to fall on her, you would consider the human factors considerations that led to the injury occurring in the context of a conceptual model we discuss in class, how the accident could have been avoided, and what steps were taken in the workplace 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 ID) and **unlimited additional** pages for references (**minimum of 15 appropriate references**). References must be recent (not more than 5 years old). You may use **up to 2 references from websites** (appropriately cited), but the rest must come from peer-reviewed journal articles. Do not cite course material in your paper. Include page numbers (bottom right) on all pages. In-text referencing should follow AMA style (https://www.bcit.ca/files/library/pdf/bcit-ama_citation_guide.pdf). 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 and the references you plan to use are appropriate for the assignment. The summary will be 1-2 pages (double spaced) and includes the title of the paper. You will be required to submit a list of a **minimum 10 references** that will appear in your final case study. Reference formatting should be in AMA style and follow the requirements described in the previous paragraph.

The grading rubric for the Case Study is below. The Case Study comprises 35% of the final grade (10% for the summary, 25% for the case study).

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, 7, 8**, 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. 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 open.

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 [Senate 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 - <http://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-and-or-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 – Fall 2023
Tuesday/Thursday, 2:30 – 4:00pm

DATE	TOPICS
Week 1	Th, September 7 – Introduction and syllabus review
Week 2 <i>(formative evaluation)</i>	T, September 12 – Integrated Systems Model: an overview Th, September 14 – Sensory systems
Week 3 <i>(formative evaluation)</i>	T, September 19 – Perception Th, September 21 – Executive function
Week 4 <i>(Sept 27 – Forum 1 due)</i>	T, September 26 - Motor systems Th, September 28 – Module 1 recap and test prep session
Week 5 <i>(formative evaluation)</i>	T, October 3 – Test 1 Th, October 5 – Task analysis
Week 6	Week of October 9 Reading Week – no class
Week 7 <i>(formative evaluation)</i>	T, October 17 – Injury and error by repetition Th, October 19 – Stability
Week 8 <i>(formative evaluation)</i>	T, October 24 – Mobility Th, October 26 – Manipulation
Week 9 <i>(Oct 29 – Forum 2 due)</i>	T, October 31 – Module 2 recap and test prep session Th, November 2 – Test 2
Week 10 <i>(November 8 – last day to drop course without receiving a grade)</i>	T, November 7– Work and health for a changing population Th, November 9- The Silver Tsunami
Week 11	T, November 14 – Environmental variations Th, November 16– Human factors/error in industry
Week 12 <i>(November 24 - Case study summary due)</i>	T, November 21- Universal design Th, November 23 – User-centered design
Week 13	T, November 28 – Medical devices Th, November 30 - Assistive devices
Week 14 <i>(Dec 4 – Forum 3 due; Dec 10 – Case Study due – 11:59pm)</i>	T, December 5 – Module 3 recap

Case Study Grading Rubric

Category	Scale
Background/introduction	<p>3=provides adequate introduction to the themes of case, is within the scope of the course, and appropriately develops a problem to solve.</p> <p>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.</p> <p>1= provides a very generic background. The presented problem does not align with the background.</p> <p>0= provides an inappropriate background and/or was very difficult to read and/or understand. No problem is identified.</p>
Human factors problem in the context of a conceptual model covered in class	<p>3= thorough, relevant, and understandable statement of the problem that clearly identifies and relates to a model discussed in class.</p> <p>2= generic information provided, provides some description of the problem in the context of a model; may or may not discuss all information relevant to the case.</p> <p>1= some relevant model-related information is missing or unclear; very wordy; does not communicate effectively the exact primary issue at hand, inaccurate application of a model.</p> <p>0= no model was used, no relevant information provided concerning this human factors problem, issue was not identified, and/or was very difficult to read and understand.</p>
Findings/analysis	<p>3= provides a stepwise temporal outline that details the objective findings from the investigation that would have occurred in your case.</p> <p>2= provides incomplete but orderly objective findings.</p> <p>1= provides a few random objective findings.</p> <p>0= very difficult to read or understand basic objective findings.</p>
Factors contributing to the problem	<p>3= provides a thorough description of the factors that led to the human factors problem and relates this to the findings/analysis.</p> <p>2= provides an incomplete description of the factors that led to the human factors problem and relates this to the findings/analysis.</p> <p>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.</p> <p>0= does not describe the factors that led to the human factors problem.</p>
Solution/intervention	<p>3= provides a final solution/set of solutions along with a chronological and detailed list of interventions.</p> <p>2= provides a minimum amount of information specific to interventions or does not list interventions in a precise, chronological order.</p> <p>1= provides a generic, non-detailed summary of solutions provided.</p> <p>0= provides no real solutions or interventions nor a legitimate timeline.</p>
Expected outcomes from intervention	<p>3= provides a strong case as to why this set of solutions is likely to be effective.</p> <p>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.</p> <p>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.</p> <p>0= does not expand upon why the approach will be effective.</p>
Conclusion	<p>3= provides a clear and concise summary of the facts of the case study as well as what can be learned from this case.</p> <p>2= provides a wordy or overly-summarized summary of the case.</p> <p>1= provides information that does not adequately summarize the case.</p> <p>0= fails to provide a real conclusion to the case study.</p>

Formatting (including references)	<p>3= Thoroughly follows formatting guidelines as outlined for case study. All of the references included in the summary appear in the case study.</p> <p>2= Generally follows formatting guidelines with minimal errors. Most of the references included in the summary appear in the case study.</p> <p>1= Submits case study with several significant formatting errors. Some of the references included in the summary appear in the case study.</p> <p>0= Fails to adhere to general formatting requirements. None of the references included in the summary appear in the case study.</p>
Grammar	<p>3= No grammatical/spelling errors.</p> <p>2= Minimal grammatical/spelling errors (e.g. < five errors).</p> <p>1= Several significant grammatical/spelling errors (e.g. > five errors).</p> <p>0= Case study is difficult to read due to the level of grammatical/spelling errors.</p>
Quality of writing	<p>3= Uses clear and coherent writing style consistent with professional writing standards: sentences can stand alone, solid flow, professional terminology.</p> <p>2= Generally clear writing with minimal deviation from professional writing standards.</p> <p>1= Several significant deviations from professional writing standards.</p> <p>0= Often incomprehensible writing style due to significant deviation from professional writing standards.</p>

Formatting a Case Study: 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). References must be recent (not more than 5 years old). You may use up to 2 references from websites (properly cited), but the rest must come from peer-reviewed journal articles. Do not cite course material in your paper. Include page numbers (bottom right) on all pages. In-text referencing should follow AMA style (https://www.bcit.ca/files/library/pdf/bcit-ama_citation_guide.pdf). Note: Case studies will be submitted through Turnitin on eClass.

Examples: the links below are descriptions of real events that resulted in fatalities. In these examples, you'll note relevant details related to findings of the investigation, factors contributing to the problem, and solutions/interventions/recommendations that could have prevented event from occurring or which would mitigate risk of future events. You can use these cases to help with developing your own, in alignment with the rubric above.

<https://admiralcloudberg.medium.com/rights-of-way-the-crash-of-united-express-flight-5925-the-quincy-runway-collision-2aac1e551560>

<https://www.worksafesask.ca/wp-content/uploads/2023/06/Workplace-Fatality-Summary-Report-Worker-Fatally-Injured-Installing-Fascia.pdf>

Grading of the Case Study:

- Main case study body (21 points)
- Formatting (3 points)
- Grammar (3 points)
- Quality of writing (3points)
- Total possible points: 30 points

Discussion Forum Grading Rubric

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

2.5 points: Participated occasionally (3 or fewer 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 (2 or fewer 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.