**The Human Body**

# Individual assignment – Writing multiple-choice questions

# Worth 5% of final grade

**What is PeerWise, and what are its benefits for you?**

The assignment will be completed using PeerWise, an online repository for multiple-choice questions that are created, answered, rated and discussed by students. The level of thinking required in designing questions, thinking of distracters (i.e. plausible alternatives to the correct answer), writing explanations supporting your answers or rating and commenting other students’ questions will help deepen your understanding of a topic. Also, using your peers’ questions for retrieval practice will enhance your retention of the material, especially if you carefully plan spaced practice sessions before an evaluation.

**Assignment**

For each of the units 1, 2 and 3, you will have to design one (1) multiple-choice question (MCQ) and to answer and rate a minimum of ten (10) questions. You will also have to comment ten (10) questions total, at least one from each unit. Since all questions will be shared among human body students, you will have access to a lot of questions to practice and assess your understanding of the material seen in class.

To help you design thoughtful, high-order cognitive skills (HOCS) questions, refer to Crowe *et al.* 2008 (*Biology in Bloom: Implementing Bloom’s Taxonomy to Enhance Student Learning in Biology*) posted on Moodle, under *Additional material > Study strategies*. While it is suggested but not required to go over the whole scientific paper, you should focus on **Tables 1, 2 and 3** to help you design good questions.

1. **Create an account on PeerWise**

The first step will be to create an account on PeerWise. To do so, follow the steps below:

1. Go on the PeerWise website: <http://peerwise.cs.auckland.ac.nz/at/?crc_sher_qc_ca>
2. Click on “Registration” to create an account.
3. Use the following information to create your account and to join the course:
   1. **User name**: use your FIRST NAME and LAST NAME (ex : Pierre-Luc Grondin)
   2. **Course ID** is **22858**
   3. **Identifier**:use your student number (ex: 1912345)

The steps are also explained in the following video: <https://peerwise.cs.auckland.ac.nz/docs/screencasts_registering.php>.

1. **Creating your questions on PeerWise**

PeerWise provides a guide for students, where all the different features are explained: <https://peerwise.cs.auckland.ac.nz/docs/students/>.

There are also videos showing how to:

1. Create questions in PeerWise:

<https://peerwise.cs.auckland.ac.nz/docs/screencasts_creating.php>

1. Edit questions in PeerWise:

<https://peerwise.cs.auckland.ac.nz/docs/screencasts_editing.php>

1. Include images in PeerWise questions: <https://peerwise.cs.auckland.ac.nz/docs/screencasts_images.php>
2. Search for questions on PeerWise: <https://peerwise.cs.auckland.ac.nz/docs/screencasts_searching.php>

**Deadlines**

This assignment, with many deadlines spread throughout the semester, will count for 5% of your final course grade. To have the full marks you must have completed the following tasks by the deadlines specified below:

* Question on Unit 1 should be submitted at the latest on **February 19th, 2021**. (1%)
* Question on Unit 2 should be submitted at the latest on **March 26th, 2021.** (1%)
* Question on Unit 3 should be submitted at the latest on **April 30th, 2021**. (1%)
* You should have answered and rated a minimum of 10 questions per unit, for a total of minimum 30 questions by **May 14th, 2021**. (1%)
* You should have commented a minimum of 10 questions total, but at least one per unit, by **May 14th, 2021**. (1%)

**Guidelines for your questions**

* You must have at least four (4) multiple-choice options (including the correct answer).
* You must identify the Unit (1, 2 or 3) corresponding to your question by clicking on the appropriate tag during the process of creating your question. Failure to do so will be penalized.
* You must include an explanation for each of your questions in order to provide feedback to the other students answering your questions.
* You may comment questions from other students. Questions will be marked after the submission deadline, even if they are published in advance. This gives to opportunity to the author to revise/edit a question based on students’ comments.
* It is suggested, but not required, that you include more than one concept in your questions (try to make links).
* Design questions that call for some thinking and analysis and not just memorization of facts. Avoid “what”, “when”, “where” etc. questions and privilege “how” and “why” questions.
* Points will be taken off for:
  + Questions that deal only with recall of facts rather than understanding and reasoning
  + Questions that contain mistakes, are confusing, or irrelevant to the topic
  + Questions that are submitted late
* Question examples you may **NOT** submit:
  + “Which of the following is an example of…”
  + “List the components of…”
  + “What is the definition of…”

**Some questions written by students will be included on tests or on the final exam.**

**Sample marking grid**

For each question you design

Quality of the question – *Refer to appendix A* (4 pts)

Answering questions

Minimum of 10 questions answered and rated for each unit (3 pts) 1 pt per unit

Minimum of 10 questions commented (total), minimum of one per unit (1 pt)

Penalties

Mistake in a question (-1)

Tag (Unit 1, 2 or 3) not identified for a given question (-0.5)

Late submission of a question (-1)

Question copied from a textbook, website, Learning Catalytics, Moodle, etc (-4)

**Appendix A – Scale Guide for Quality Grading**

Adapted from <https://peerwise.cs.auckland.ac.nz/docs/community/resources/Rubric-for-Rating-Questions.pdf>

[**0**] Confusing question and no explanation.

[**1**] Clear question with missing, incomplete, confusing, or poorly reasoned explanation.

[**2**] Clear question related to topic, clear & complete explanation, deals **only with recall of facts**.

[**4**] Clear question related to topic, clear & complete explanation, deals with **understanding of concepts or ideas**, **application, analysis, interpretation, and/or evaluation skills**.

**Example of a good question**

**Non-disjunction of sister chromatids, during meiosis, may lead to abnormal number of chromosomes in gametes. What would be the ploidy of a cell of an embryo resulting from the fusion between a normal sperm and an ovum with one (1) less chromosome?**

1. n -1 = 23
2. n -1 = 45
3. 2n -1 = 45
4. 2n -1 = 46

👍 **This question is good because:**

* Even though it starts with remembering the number of chromosomes in a gamete, it involves predicting the outcome of an event.
* The question and answer alternatives are clearly formulated, and the vocabulary is specific.
* The answer alternatives cover different factors that are plausible. The answer is not given away, so it makes the respondent think.
* The question covers more than one topic: chromosomes, ploidy (aneuploidy), fertilization, gametes.

👎 **Example of a poor question**

**How many chromosomes are found in a normal gamete?**

1. 2
2. 23 (correct answer)
3. 46
4. 92

👎 **This question is poor because** it does not call upon higher thinking abilities and is purely factual (recall of fact, no need for understanding).