Stellar structure and evolution (MN1) Tutorial questionnaire Ht03

Here are some statements that may or may not describe your beliefs about this course. Please read each statement and mark the box that describes how strongly you agree or disagree:

 Strongly disagree	- Somewhat disagree	0 Neutral	+ Somewhat agree	+++ Strongly agree
Strongry disagree	Some what disagree	0 neutrai	· Somewhat agree	Shongly agree

- 1. Someone who does *not* have high natural ability can still learn the material well, even in a hard physics class.
- 2. All I need to do to understand most of the basic ideas in a course is just read the text, work most of the problems, and/or pay close attention in class.
- 3. If physics teachers gave *really clear* lectures, with plenty of reallife examples and sample problems, then most good students could learn those subjects without doing lots of sample questions and practice problems on their own.
- 4. In this course, I do not expect to understand equations in an intuitive sense; they must just be taken as givens.
- 5. Learning physics is a matter of acquiring knowledge that is specifically located in the laws, principles, and equations given in class and/or in the textbook.
- 6. I do not like it when we are expected to ask and answer questions during the tutorials.
- 7. In doing a physics problem, if my calculation gives a result that differs significantly from what I expect, I would just have to trust the calculation.
- 8. I spend a lot of time figuring out and understanding at least some of the derivations given either in class or in the text.
- 9. When it comes to understanding astronomy or physics, remembering facts is *not* very important.
- 10. Sometimes, even if I get a good grade on a course, I still worry that I do not understand the physics very well.
- 11. If I cannot remember a particular equation needed for a problem in an exam, there is not much I can do (legally!) to come up with it.























- 12. My grade in this course should be primarily determined by how familiar I am with the material. Insight or creativity has little to do with it.
- 13. It is useful when other students ask questions in class rather than going to ask the teacher afterwards.
- 14. The most crucial thing in solving a physics problem is finding the right equation to use.
- 15. To be really honest, if I could be guaranteed a good grade, I would prefer an easy course with less work even if it meant learning a bit less.
- 16. A good understanding of physics is necessary for me to achieve my career goals. A good grade in this course is not enough.
- 17. All I learn from a derivation of a formula is that the formula is valid and that it is OK to use it in problems.
- 18. One of the most important tasks in any astronomy or physics course is memorizing all the information I need to know.
- 19. The best way for me to learn physics is by solving many problems rather than by carefully analyzing a few in detail.
- 20. It is *not* necessary to take notes during lectures *if* the teacher explains the subject really well.
- 21. To understand physics, the formulas (equations) are really the main thing; the other material is mostly to help you decide which equations to use in which situations.
- 22. I generally know what I need to do in order to learn and understand the material for a course. I do not need any extra help with study methods.
- 23. Learning physics requires that I substantially rethink, restructure, and reorganize the information that I am given in class and/or in the text.

























Please try to rank the different items according to how important they are to you:

Not at all - Not much 0 Somewhat + Rather important	+++ Extremely important
---	-------------------------

24. How important are the following for you to understand a physics topic?

- (a) Reading about it in the book.
- (b) Spending time working through the derivation(s).
- (c) Looking at the sample problems and solutions in the book.
- (d) Getting correct numerical answers to practice calculations.
- (e) Memorizing all the important definitions, facts, and formulas.
- (f) Struggling through one or two very challenging problems.
- (g) Being able to explain it in words.
- (h) Going carefully through the notes I took in class.

25. How important do you think are the following for you to get a good grade?

- (a) Reading about the subject in the book.
- (b) Spending time working through the derivation(s).
- (c) Looking at the sample problems and solutions in the book.
- (d) Getting correct numerical answers to practice calculations.
- (e) Memorizing all the important definitions, facts, and formulas.
- (f) Struggling through one or two very challenging problems.
- (g) Being able to explain the topics in words.
- (h) Going carefully through the notes I took in class.

26. The purpose of the tutorials should be to:

- (a) Practice for the final exam in order to get a good grade.
- (b) Do more advanced calculations in stellar physics.
- (c) Give me the chance to ask questions and talk over the answers.
- (d) Review the most important facts relating to the subject.
- (e) Explore some of the subjects further and in more depth.
- (f) Help me develop my understanding of underlying concepts.

 -	0	+	+++

	-	0	+	+++
				\square

 -	0	+	+++

- 27. Here is a sample physics problem.
 - "Two students want to break a rope. Is it better for them to
 - [1] grab opposite ends of the rope and pull (like in tug-of-war), or
 - [2] tie one end of the rope to a wall and pull on the other end together?"

If someone is trying to learn physics, is this a good kind of question to think about?

- (a) No, definitely not. This kind of question isn't helpful at all.
- (b) Not really. This kind of question isn't that great for learning the main ideas.
- (c) **Yes, a little.** This kind of question is helpful, but other kinds of questions are more helpful.
- (d) Yes, to some extent. But other kinds of questions are equally good.
- (e) Yes, definitely. It's one of the best kinds of questions to study.
- 28. In physics and astronomy, how do the most important formulas relate to the most important concepts? (Please read all choices before picking one.)
 - (a) The major formulas summarize the main concepts; they're not really separate from the concepts. In addition, those formulas are helpful for solving problems.
 - (b) The major formulas are kind of "separate" from the main concepts, since concepts are **ideas**, not equations. Formulas are better described as problem-solving tools, without much conceptual meaning.
 - (c) Mostly (a), but a little (b).
 - (d) About half (a) and half (b).
 - (e) Mostly (b), but a little (a).
- 29. Of the following formats, which is the best for measuring how well students understand the material in physics and astronomy? (Please read each choice before picking one.)
 - (a) A large collection of short-answer or multiple-choice questions, each of which covers one specific fact or concept.
 - (b) A small number of longer questions and problems, each of which covers several facts and concepts.
 - (c) A compromise between (a) and (b), but leaning more towards (a).
 - (d) A compromise between (a) and (b), favoring both equally.
 - (e) A compromise between (a) and (b), but leaning more towards (b).
- 30. Which of the following best describes your future plans? (Please circle all that apply.)
 - (a) I am not planning a career in physics or astronomy.
 - (b) I will probably do an *examensarbete* in physics.
 - (c) I will probably do an *examensarbete* in astronomy.
 - (d) I may do a Ph.D. in physics.
 - (e) I may do a Ph.D. in astronomy.

In each of the following items, you will read a short discussion between two students who disagree about some issue. Please indicate whether you agree with one student or the other.

- 31. Johan: A good science textbook should show how the material in one chapter relates to the material in other chapters. It shouldn't treat each topic as a separate "unit," because they're not really separate.
 - **Bo:** But most of the time, each chapter is about a different topic, and those different topics do *not* always have much to do with each other. The textbook should keep everything separate, instead of blending it all together.
 - (a) I agree almost entirely with Johan.
 - (b) Although I agree more with Johan, I think Bo makes some good points.
 - (c) I agree (or disagree) almost equally with Johan and Bo.
 - (d) Although I agree more with Bo, I think Johan makes some good points.
 - (e) I agree almost entirely with Bo.
- 32. **Birgitta:** It's such a waste of time when the teachers try to get us to "discuss" problems in class. *They're* the ones who are supposed to be doing the teaching.
 - **Jenny:** But sometimes when I have to talk with someone else, I realize that I did not understand something very well, and it helps to figure it out together. You can learn a lot from other students.
 - **Birgitta:** Maybe, but it would still be a lot more effective if the teacher would just tell us what we need to know.
 - (a) I agree almost entirely with Birgitta.
 - (b) Although I agree more with Birgitta, I think Jenny makes some good points.
 - (c) I agree (or disagree) equally with Birgitta and Jenny.
 - (d) Although I agree more with Jenny, I think Birgitta makes some good points.
 - (e) I agree almost entirely with Jenny.
- 33. Leticia: Some scientists think the dinosaurs died out because of volcanic eruptions, and others think they died out because an asteroid hit the Earth. Why can't scientists agree?
 - **Maria:** Maybe the evidence supports both theories. There's often more than one way to interpret the facts. So we have to figure out what the facts mean.
 - Leticia: I'm not so sure. In stuff like personal relationships or poetry, things can be ambiguous. But in science, the facts speak for themselves.
 - (a) I agree almost entirely with Leticia.
 - (b) Although I agree more with Leticia, I think Maria makes some good points.
 - (c) I agree (or disagree) equally with Maria and Leticia.
 - (d) Although I agree more with Maria, I think Leticia makes some good points.
 - (e) I agree almost entirely with Maria.

- 34. Justin: When I'm learning science concepts for a test, I like to put things in my own words, so that they make sense to me.
 - **Dave:** Bet putting things in your own words doesn't help you learn. The textbook was written by people who know science really well. You should learn things the way the textbook presents them.
 - (a) I agree almost entirely with Justin.
 - (b) Although I agree more with Justin, I think Dave makes some good points.
 - (c) I agree (or disagree) equally with Justin and Dave.
 - (d) Although I agree more with Dave, I think Justin makes some good points.
 - (e) I agree almost entirely with Dave.
- 35. Jessica and Mia are working on a homework assignment together...

Jessica: Okay, we just got problem #1. I think we should go on to problem #2.

- **Mia:** No, wait. I think we should try to figure out why the thing takes so long to reach the ground.
- **Jessica:** Mia, we know it's the right answer from the back of the book, so what are you worried about? If we didn't understand it, we wouldn't have gotten the right answer.
- Mia: No, I think it's possible to get the right answer without really understanding what it means.
- (a) I agree almost entirely with Jessica.
- (b) Although I agree more with Jessica, I think Mia makes some good points.
- (c) I agree (or disagree) equally with Mia and Jessica.
- (d) Although I agree more with Mia, I think Jessica makes some good points.
- (e) I agree almost entirely with Mia.

Please put this questionnaire in an internal-mail envelope and put it in Michelle's mailbox on **Thursday, September 4**. Thank you for giving your opinions!