



# Course Organization Notes

## *Big Bang & Black Holes*

**ASTR/PHYS 109**

**David Toback**

**Last updated 1/29/2018**



# Overview

First describe how everything fits together, then describe the assignments in detail

This document can be found at

<http://people.physics.tamu.edu/toback/109/CourseOrganization.pdf>

# Grades

---

**The course grade will be:**

1. Short Papers in Peerceptiv: 90%
2. Pre-Lecture Reading Questions (PLRQ) Assignments and In-Class Quizzes: 5%
3. End-Of-Chapter (EOC) quizzes in eCampus: 5%

**No in-class exams or final**

**The lab (ASTR/PHYS 119) is a separate course and NOT a required**

# Course Website

## Course Home Page

<http://people.physics.tamu.edu/toback/109>

Most things can be found there

Need help? email at

[109help@physics.tamu.edu](mailto:109help@physics.tamu.edu)

Syllabus is also on Howdy

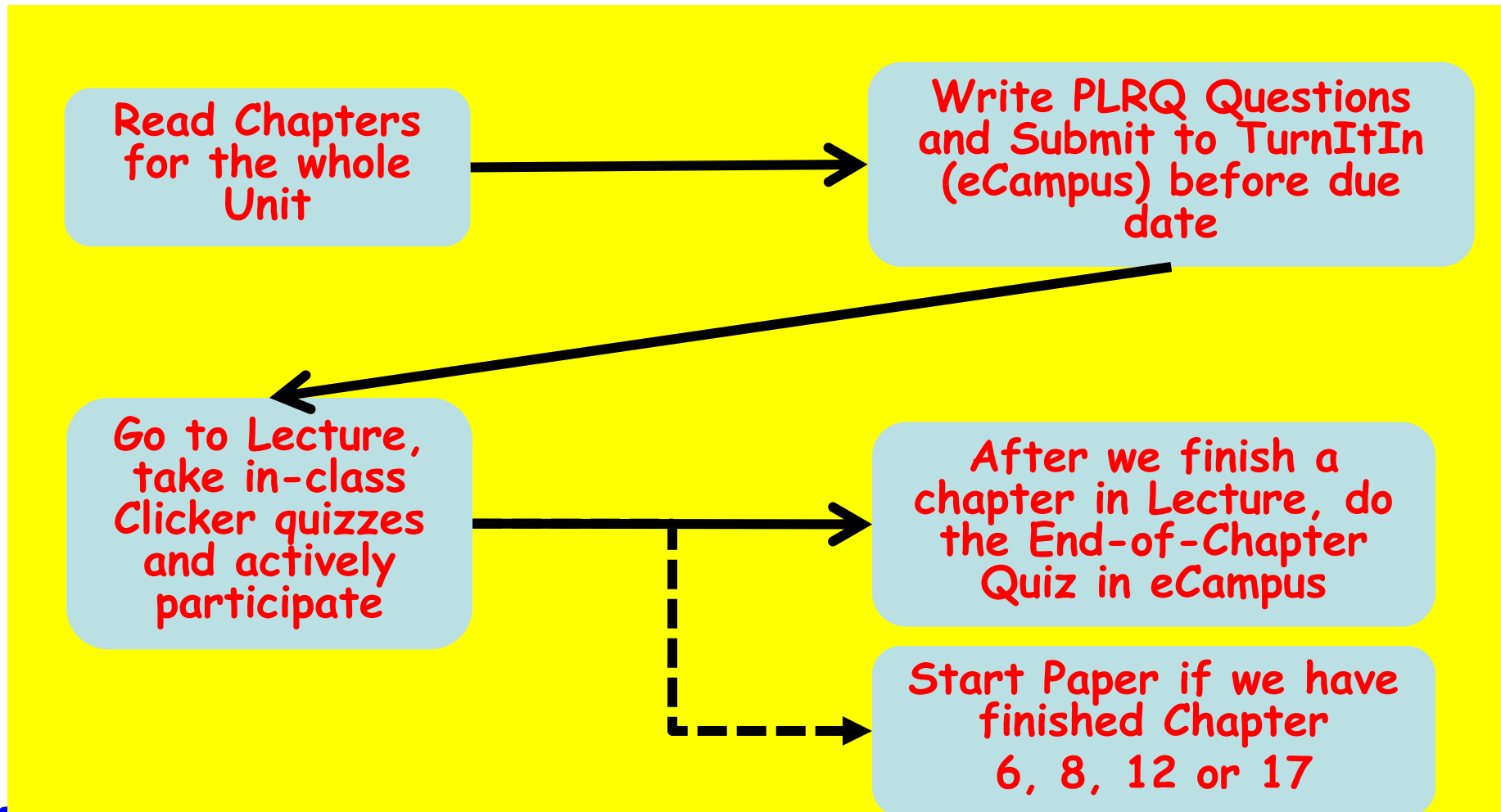
Don't need to write this all down!

Copy of all the lecture notes at

<http://people.physics.tamu.edu/toback/109/Lectures/>

# Typical Order of Things

(Things will be a little different for the first week)  
<http://people.physics.tamu.edu/toback/109/ClassSchedule.pdf>



# Tentative Schedule for 2018A

---

This document can be found at  
<http://people.physics.tamu.edu/toback/109/ClassSchedule.pdf>

# Frequently Asked Questions Page

- There is an FAQ page for the course

<http://people.physics.tamu.edu/toback/109/109FAQ.shtml>

- In general, you should check there if you have a question about the course or assignments before emailing

---

# eCampus

Where we will be doing  
all the online content

Login instructions at

[http://people.physics.tamu.edu/toback/109/ECampus\\_Quiz\\_Instructions\\_and\\_Help.pdf](http://people.physics.tamu.edu/toback/109/ECampus_Quiz_Instructions_and_Help.pdf)



# Use eCampus for many things

---

- **Papers:**
  - Peerceptiv
  - TurnItIn
- **Pre-Lecture Reading Questions (PLRQ):**
  - TurnItIn
- **Quizzes:**
  - Warmup quizzes
  - End-of-Chapter (EOC) quizzes
- **Other:**
  - Announcements
  - Grades

---

# General Information About Quizzes in eCampus

## Warmup and End-of-Chapter (EOC)

# Warmup Quizzes

---

- Designed to help you learn how to do things in the course (and practice for the science later)
- The last quiz is called “Astronomy Misconception Survey” (AMS) which is different than all the others and is designed to tell us when you know coming into the course
  - Please do your best
  - You only get one try
  - Won't count as part of your grade
- You are done with Warmups when you have finished this quiz

# End-of-Chapter Quizzes

---

- There are End-of-Chapter quizzes for each chapter
  - Helps ensure you have a good knowledge of some of the important FACTS for each chapter
  - Will be done online, using eCampus
  - Need a 100% on all quizzes to pass course
  - Are assigned AFTER we finish the chapter in lecture, and due before the next lecture
  - If you need more attempts, follow the standard instructions

# eCampus Quizzes

---

- **Start with free Warmup quizzes**
  - Need a 100% on most of them (don't worry... most are easy if you read this document)
  - In the "Quizzes" folder, then go to "Required Warm-ups"
- **When these are done, the End-Of-Chapter Quizzes folder becomes available**
  - In the "Quizzes" folder, then go to "End-of-Chapter Quizzes" folder
  - First one is Chapter 2 (no Chapter 1 quiz)
  - EOC quiz due **AFTER** we finish the chapter in lecture

# Perfect Quizzes

## Bad news:

- To pass the course you need to get a perfect score on all of them

## Good news:

- You can take as many attempts as you want until you get a perfect score
- Feedback for most quiz questions
- I will only count your best score

I REALLY want you to learn and get good grades!

There will be many assignments with this rule, but not all of them (e.g. AMS)

# Discouraging Guessing

- You get unlimited attempts, but to discourage guessing if you use more than 5 attempts you will have to request more
- Specific instructions on how to request more attempts (following the proper format helps us help you) at

[http://people.physics.tamu.edu/toback/109/ECampus\\_Quiz\\_Instructions\\_and\\_Help.pdf](http://people.physics.tamu.edu/toback/109/ECampus_Quiz_Instructions_and_Help.pdf)

# Getting Help/Additional Attempts for Quizzes

- Send an email at [109help@physics.tamu.edu](mailto:109help@physics.tamu.edu)
- Follow the instructions on Page 3 of [http://people.physics.tamu.edu/toback/109/ECampus Quiz Instructions and Help.pdf](http://people.physics.tamu.edu/toback/109/ECampus_Quiz_Instructions_and_Help.pdf)
  - There are also instructions on how to get to all the information about your previous attempts that you will need to send us in your request
- For good examples see Page 4
- With that information we can usually figure out what is causing you to struggle (and will usually just give you two more attempts)
- Then again, maybe you are correct and we need to fix it in eCampus! If that's the case, we'll give you extra credit!



# Example of a Good Email

Howdy,

I'm struggling with End of Chapter quiz Chapter 3:

Question 12: "Which of the following are thought of as a composite particle? Select all that apply."

1. Atom (Yes. Atoms are composed of protons, neutrons, and electrons)
2. Quark. (No. Quarks are listed as fundamental particles in Table 3.1)
3. Electron. (No. Electrons are listed as fundamental particles in Table 3.1)
4. Neutrino. (No. Neutrinos are listed as fundamental particles in Table 3.1)

Feedback: Hint: Any particle that is not a fundamental particle must be a composite particle

\*\*\*\*\*

**IT HAS:**


- THE NAME OF THE QUIZ
- THE QUESTION NUMBER
- THE TEXT OF THE QUESTION
- THE ANSWER NUMBERS AND TEXTS...
- YOUR ANSWER AND REASON WHY CLOSE TO ONE ANOTHER
- THE FEEDBACK (or a note that there is none)
- AND NO RANDOM FORMATTING CLUTTERING UP EVERYTHING

**THIS IS A GOOD E-MAIL! MAKE YOUR EMAILS FOR HELP LOOK LIKE THIS!**

For more details see page 3 of

[http://people.physics.tamu.edu/toback/109/ECampus\\_Quiz\\_Instructions\\_and\\_Help.pdf](http://people.physics.tamu.edu/toback/109/ECampus_Quiz_Instructions_and_Help.pdf)

Big Bang & Dark Matter Course Organization Document



# Pre-Lecture Reading Questions (PLRQ)

# Pre-Lecture Reading Questions

---

- It is important to learn how to ask good science questions (or tell if a question is a good question), and to be well prepared for Lecture
- For these reasons we will have a number of PLRQ Assignments
- Will submit to TurnItIn
- Guidelines for what we are looking for at

[http://people.physics.tamu.edu/toback/109/PLRQ\\_Guidelines.pdf](http://people.physics.tamu.edu/toback/109/PLRQ_Guidelines.pdf)

# *How can I tell if my question is well asked?*

- Is it relevant to the reading?*
- Is it clear and well phrased?*
- Does it reflect critical thinking?*
- Is it relevant to the science in the reading?*
- Is there only one question mark in the actual question?*

# Two Types of Assignments

---

## 1. Unit 1

- Pass/Revise-and-Resubmit
- We will work with you until you get it right, then give you full credit

## 2. Units 2-6

- Pass/Fail
- You will be able to do a revision
- There are late penalties



# Lab Course

# ASTR/PHYS 119

# Lab - ASTR/PHYS 119

---

- You are not required to take the Lab for this course
  - Useful if you want another credit hour for your "Life and Physical Sciences Core Courses" requirement
  - Or maybe you just want to learn more? Get more in-depth? Use a little math...
  - **Meets on Tuesday: 12:45PM-2:45PM**
    - No meeting Tuesday of 1<sup>st</sup> week
    - You need to read the lab Manual and web instructions (and do the prep work)
- B** BEFORE lab



# Other Stuff



# Grades

- I like for my students to do well and I like giving lots of good grades
- This is not an "Easy A" class despite what you may have heard
- Do all the work and I'll make it worth your while, both in terms of fun and your grade
  - If you blow off the easy stuff or don't ask for help when you need it, then I'm unlikely to have much sympathy when you ask for a grade change at the end of the semester
  - I've given lots of F's
- It will be a lot of work, so if you don't want to keep up with the class every day, work hard and stretch your mind, you should drop now
- I'll expect you to keep at it until you get it right

# More Detail on Grades, Revisions and Pass/Revise/Fail

- **For the online eCampus quizzes:**
  - The Warmup quiz scores (including AMS) are not counted as part of your grade. However, all but AMS must be Passed (unlimited attempts for each except AMS)
  - For the EOC quizzes you will get unlimited attempts to get 100% for each quiz for all chapters (regardless of lateness), but when they are completed we will give you a 100% for each (before late penalty)
- **For PLRQ assignments:**
  - Unit 1 is Pass/Revise with unlimited attempts, is not counted as part of your grade, but must be completed
  - For Units 2-6, all the assignments are Pass/Fail (100% for a pass, 50% for a fail). You can do a single revision to get back to a 75%.
- **For Papers:**
  - The Reviewer Training Assignment (Paper 0) is not counted as part of your grade, but must be completed
  - Papers 1-4 will be curved. You can do a single revision for the text portion for each (will average text scores)
- **Late penalties**
  - There are late penalties for all assignments

# Late Penalties

---

- **EOC Quizzes**
  - 10% per lecture delay
- **PLRQ Assignments**
  - Max score of 75% if late
- **Papers**
  - Penalties in Peerceptiv  
(described there)

# Regrades and Revisions

---

- If you think you were misgraded on ANY assignment, send an email to [109help@physics.tamu.edu](mailto:109help@physics.tamu.edu)
- Revisions are allowed for many assignments, and we are here to help you do better

# Regular and Honors Sections

---

- **Regular sections**
  - ASTR 109-501
  - PHYS 109-501
- **Honors sections**
  - ASTR 109-200
  - PHYS 109-200

There is no difference between the Physics and Astronomy sections (All meet together)

This course counts as 3 credit hours for your "Life and Physical Sciences Core Courses" requirement

# Honors vs. Regular Sections

---

- There is no difference between the Physics and Astronomy Honors sections lectures - All meet together
- Assignments are the same, except students in the Honors section have an extra research paper - See Course Webpage
- *Want to be in the honors section but couldn't get in? In the honors section but want to get out? Let me know and we'll fix it*

# Class Time

---

- We meet Monday, Wednesday and Friday from 11:30AM to 12:20PM
- Will use the full time period
- I expect you to be on time, and prepared for class by being caught up with all the assignments

# Coming to Class

---

- Need you to be proactive DURING class!! Get into it and have fun
- If you need sugar or caffeine go for it... just do it quietly
  - Candy/Soda machine just outside the door at the top of the steps
- Laptops will only be allowed in the first 5 rows, and with explicit permission
  - They are too distracting



# Class Time

- Lecture will be a time where you and I interact by asking and answering each others questions
- You will need to prepare BEFORE lecture
  - Do the reading assignments
  - Write down, and turn in online, questions on the reading
    - “Pre-Lecture Reading Questions”
  - Be ready to be answer questions in class using a clicker
- If you don't understand something, ask a question in class!

# Accounts, email and eCampus

---

- You will need a net ID/UIN account for your clicker and eCampus
- You are responsible for checking your official email periodically for announcements

# In-Class Quizzes

There will frequently be in-class quizzes which are part of your grade

- Most will be done with an iClicker
  - Can buy a used one
  - Register with your **UIN** at <http://people.physics.tamu.edu/toback/109/iClickers.shtml>  
we will be using eCampus
  - Bring your clicker every day
- Sometimes we will do in-class writing
  - Bring a sheet of lined paper and a pen every day

# Textbooks

## Required Textbook

- *Big Bang, Black Holes, No Math (Toback)*
  - Extra credit for students who email me corrections which make it better (list of previous corrections online)
  - eBook or paper is fine. Can order now at [bigbang.physics.tamu.edu](http://bigbang.physics.tamu.edu)
  - Copy on Reserve if needed

## Recommended books

- *Briefer History of Time (Hawking)*
- *The Science of Interstellar (Thorne)*
- *Theory of Everything (Hawking)*
- *Stephen Hawking's Universe (Filkin)*
- *The First Three Minutes (Weinberg)*
- Other readings on the Web

Make sure you get the most up-to-date versions of each (see webpage)

- Not "*Brief History*", *Briefer History*
- I find purchasing them online is much cheaper
- Paperbacks available for most

# Recitation

---

- **No recitation for this course**
- **However, there are Teaching Assistants (TA's) who are here for you to ask questions, get help with your work and give you feedback on your paper drafts**
- **Their emails are on the main page**

# Just for Fun...

- We have created a “just for fun” Facebook account for students (past, present and future) who want to stay in touch with the course
- *Learning about the Big Bang and Black Holes Without the Math*
- It's not part of the course, but I try to post fun, related things there periodically
  - If you send me something fun (and appropriate for public consumption) I'll post it for everyone
  - If you send me something fun, but inappropriate, I'll say thank you and just enjoy privately
- Also, lots of fun stuff on <http://people.physics.tamu.edu/toback/109/Video/>



# Papers

# Papers Topics and Due Dates

- Papers will be announced before we start the chapter
- Assigned after we finish the chapter
- 4 Real Papers + 1 Practice
  - Paper 0: Reviewer Training (no writing, just review)
    - Assigned after Chapter 4, Typically week 3
  - Paper 1: Evidence for Dark Matter
    - Assigned after Chapter 6, Typically week 5
  - Paper 2: Evidence Stars are made of Atoms
    - Assigned after Chapter 8, Typically week 7
  - Paper 3: Evidence Universe started with a Big Bang
    - Assigned after Chapter 12, Typically week 10
  - Paper 4: Evidence for Black Holes
    - Assigned after Chapter 17, Typically week 14



# Style of the Paper

---

- Explain it to someone who isn't taking the class (no jargon)
- ~600 words (This is the equivalent of both sides of a sheet of paper, double spaced)
- No citations! Use your own words
- Only use information from the book
- Text should be professional. You are "trusted guide" not a "buddy" or "comedian"

# Paper Format

---

- **Must follow expected Format**
- **Each paper is usually 5 paragraphs:**
  - Introduction paragraph that outlines the evidence
  - 1 paragraph per piece of evidence (often, but not always, three)
  - Conclusion paragraph that ties it together

# Different than usual...

- Each Paper Assignment has 3 Stages, all done in Peerceptiv
  1. Text Submission: 50%
    - Also submit to TurnItIn
  2. Review (evaluate others text): 40%
    - You are required to do 3
    - Extra credit if you do more
  3. Back-evaluate your graders: 10%
- You are assigned points for each, and the entire assignment is graded on a curve
- Careful of late penalties

# Due Dates and Help

---

- We try to make papers are typically due on a Wednesday, before class
  - Can submit a draft for feedback on eCampus in "Rough Drafts (Optional)" in TurnItIn
  - Due Friday before by 11:55PM
  - If you submit late, we can try to give feedback but we can't guarantee it
  - We also recommend going to the Writing Center
- Reviews are due the following Monday (before class)
- Back-Evaluations are due that Wednesday before class

# Biggest reasons people don't do well

---

1. Don't read all the hand-out instructions on Peerceptiv


[http://people.physics.tamu.edu/toback/109/WritingAssignments/Papers\\_and\\_Peerceptiv.pdf](http://people.physics.tamu.edu/toback/109/WritingAssignments/Papers_and_Peerceptiv.pdf)

2. Don't read all the instructions given in each assignment

3. Don't do all the Peerceptiv stages and/or Forget to submit to TurnItIn

4. Get help when you need it

- Go to the Writing Center
- Submit a draft to the TA
- Read the hints on the handouts



# Peerceptiv for Papers In eCampus

[http://people.physics.tamu.edu/toback/109/WritingAssignments/Papers\\_and\\_Peerceptiv.pdf](http://people.physics.tamu.edu/toback/109/WritingAssignments/Papers_and_Peerceptiv.pdf)

# Why are we using Peerceptiv?

---

- **Skills:**

- People in the real world need to keep working on documents, often with others, until they are excellent
- People in the real world need to know how to tell the difference between an excellent document and a mediocre one
- People in the real world need to know how to give feedback on documents that will help turn them from mediocre to excellent

- **How does this impact you?**

- You need to get good at this for after you graduate
- Learn to better evaluate/improve your own work to ensure it is excellent BEFORE you submit it for a grade

# Paper 0 Reviewer Training in Peerceptiv

## *Nothing to write!!!*

- Will do a “Reviewer Training” assignment (Called Paper 0) to help you practice the reviewer portions of Paper assignments in Peerceptiv
- There is nothing to write
- Just do the Review and Back-Evaluation parts for some sample papers we give you
- Will be done after we start Chapter 4