

A Multi-Tiered Testing-and-Feedback Approach That Links Technology & Pedagogy

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University of Arizona**

OUTLINE

- **Pedagogical Basis**
- **Adaptation to NATS 101**
- **Adding Learning Technology & Other Tools**
- **A Multi-Tiered Testing & Feedback Approach**
- **Summary & Suggestions**

Pedagogical Basis

Larry Michaelsen, L. Dee Fink, Robert H. Black
(1996) *What every faculty developer needs to know about learning groups*

- (1) Learning Groups -- “Team Learning Instructional Activity Sequence”**
- (2) Pivotal role of feedback in developing students’ higher-level cognitive skills**

**Michaelsen et al. (1996) describe a
"Readiness Assurance Process"
consisting of:**

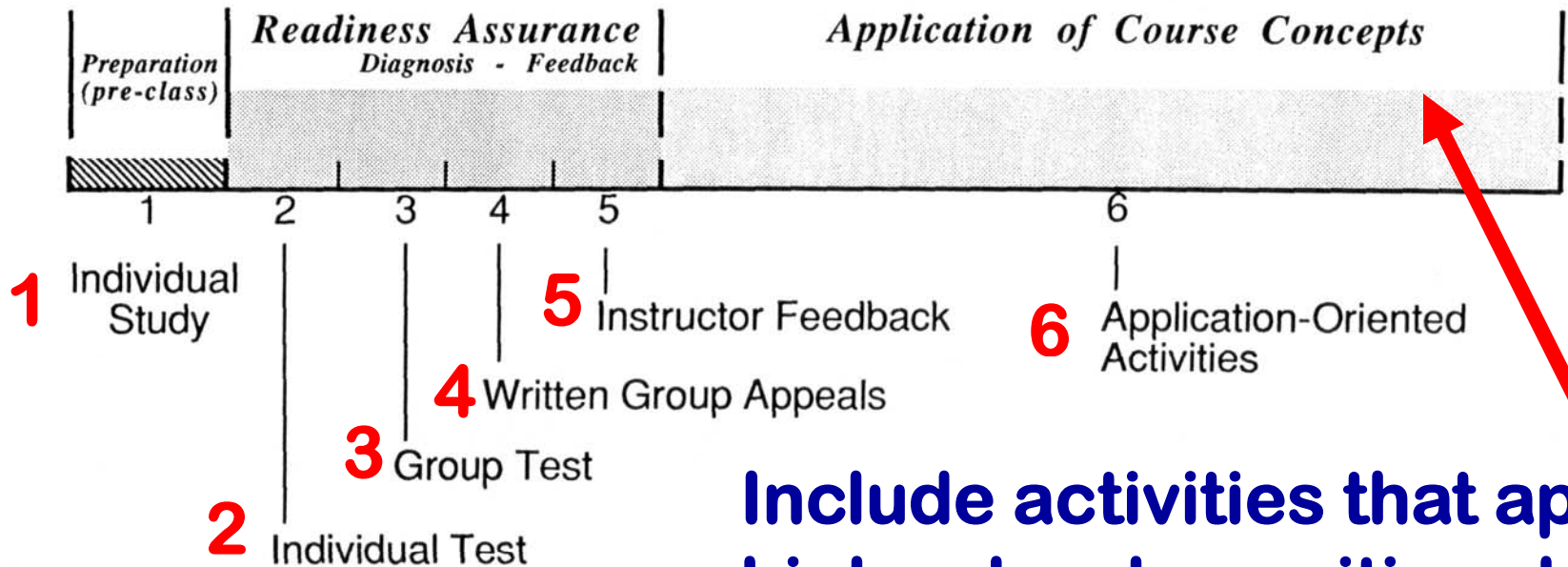
- (1) assigned readings for individual study**
- (2) an individual test**
- (3) a group test (taken within a
collaborative learning group)**
- (4) immediate feedback on the group test
with an opportunity for group appeals**
- (5) oral instructor feedback.**

Structure units of instruction based on desired learning outcomes

Team Learning Instructional Activity Sequence

(From Michaelsen et al. 1996)

Readiness Assurance Process



Include activities that apply higher-level cognitive skills to course concepts

Readiness Assurance Process:

Used to introduce each major instructional unit and to ensure that students are intellectually prepared for assignments needing higher level cognitive skills.

One result of the process is that "students encounter new data that test their understanding of key concepts at least five different times and in five very different ways."

(From Michaelsen et al. 1996)

Reassessment of Procedure in NATS 101 Course:

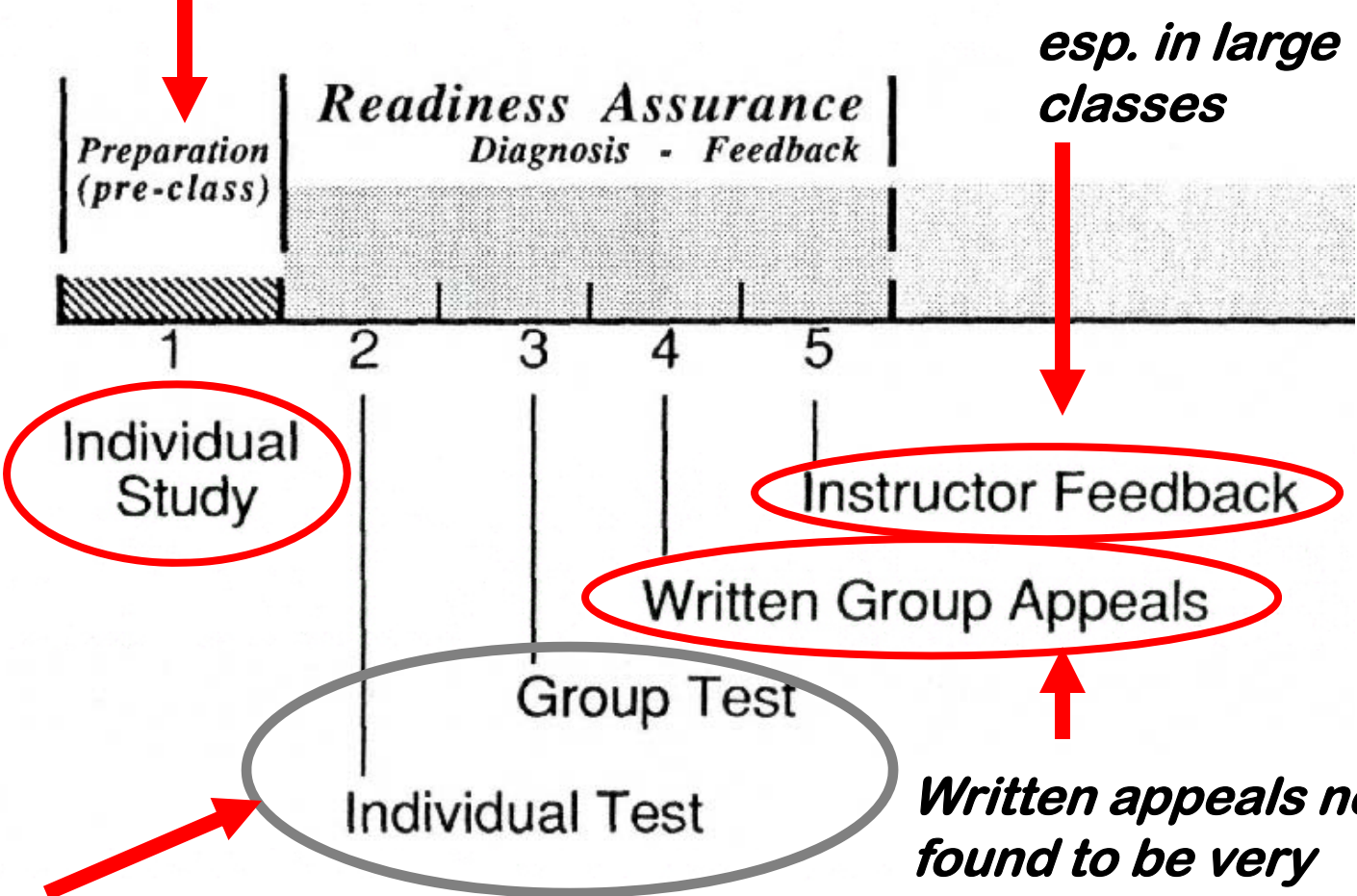
- Students complained that concepts too difficult to be tested on without prior lecture explanations**
- Readiness Tests were made simpler to compensate; hence little testing on higher level concepts took place**

- **Lots of class time taken up by Readiness Assurance testing sessions when material was broken down into more “digestible” units**
- **“Appeals” process did not lead to new learning (with Tier One students)**

INTERIM CONCLUSIONS:

Typically a weak link when students don't do the readings

ALWAYS more feedback needed, esp. in large classes



In class individual-group testing process works well!

Written appeals not found to be very useful in large, lower division class

Adaptations / Improvements:

- **More feedback during preparation phase (with “low stakes grading”) to help students understand and gain confidence with material**
- **Less class time taken up by individual phase of “Readiness Assessment”**

Adaptations / Improvements:

- **Continue with in-class Individual & Group Test process, but with “higher stakes testing”**
- **Ensure individual accountability for learning = high stakes exams**
- **More FEEDBACK needed overall**

Adding Learning Technology Tools

Have used
both
WebCT
&
D2L

INTRODUCTION TO GLOBAL CHANGE
FALL 2006 NATS 101, LEC 40
T & Th 12:30 - 1:45 pm - Integrated Learning Center 140

Instructor: Dr. Katie Hirschboeck

**ENTER D2L
HERE**
D2L Tip Sheet

**COURSE
FAQ**

**TEACHING
TEAM**


SYLLABUS

QUICK LINKS

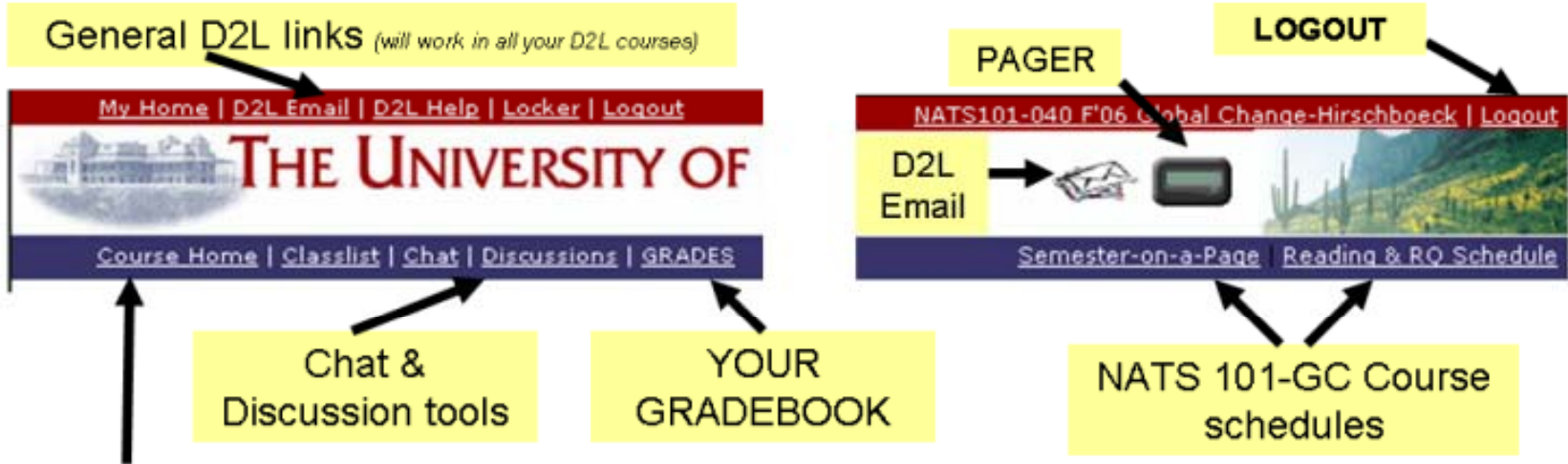
**GLOBAL
CHANGE
LINKS**

**CLASS
SUPPORT
LINKS**

**CLASS
FOLLOW UP**



<http://fp.arizona.edu/kkh/nats101gc/>



NATS 101-GC COURSE HOME

(Best way to get back to the NATS D2L homepage is to click here – your browser's BACK button may not always work)

Search News

NATS101

NATS 101 INTRODUCTION TO GLOBAL CHANGE

class website | NATS GC Webpage

FAQ | Course FAQ

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Follow Up | Class Follow Up

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posts | Discussion Posts

assignment | Assignments

self-test | Self Tests

quiz | RQ's

study guides | Study Guides

LATEST NEWS:

WELCOME TO NATS 101-GC INTRODUCTION TO GLOBAL CHANGE!!

I look forward to seeing you on the first day of class
TUESDAY Aug 22 at 12:30 pm in J.C. rm 140

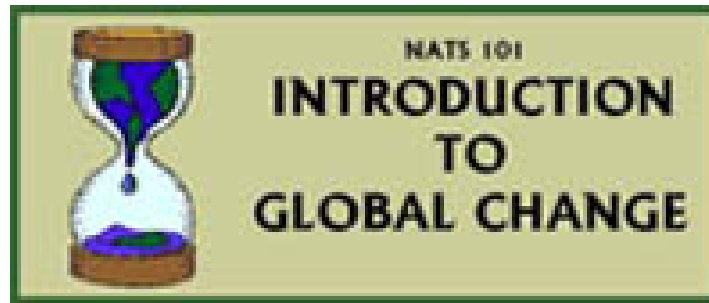
Please review the [layout](#) for our NATS 101 D2L site, then visit the **CHECKLIST TOOL** above to find out what you need to do to prepare for the first week of classes.

Your professor, Dr. Katie Hirschboeck

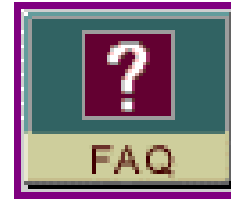
Main NATS 101-GC Course Tools here

News & Announcements here

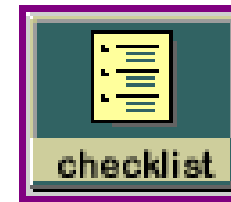
Check this daily for the latest news about the class



[NATS GC Webpage](#)



[Course FAQ](#)



[Checklist Tool](#)



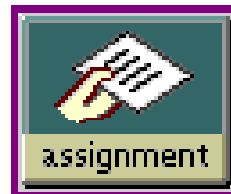
[Class Follow Up](#)



[Drop box](#)



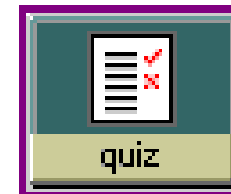
[Discussion Posts](#)



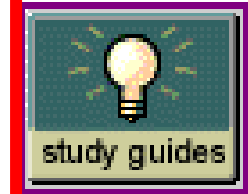
[Assignments](#)



[Self Tests](#)

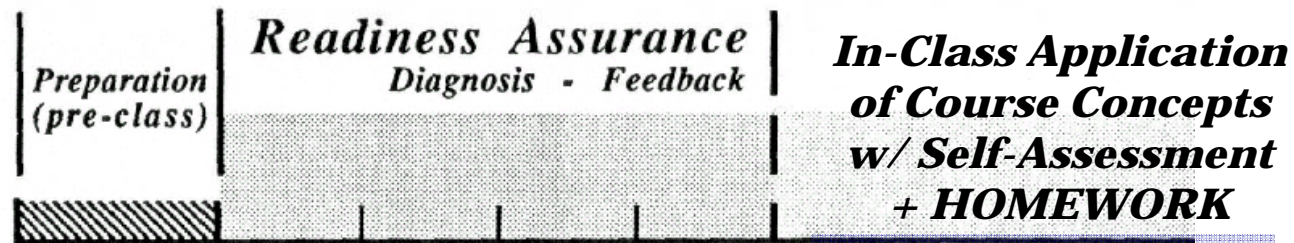


[RQ's](#)



[Study Guides](#)

Adaptation to NATS 101



Students read textbook & take online D2L Self Test w/ immediate feedback on WHY answers are correct & incorrect (also pp #) → student understanding validated & misconceptions corrected

Students take online quiz in D2L (prior to topic in class)
Grade = avg of 3 attempts
Feedback: incorrect answers only (open book – can figure out what’s wrong themselves)

Class Presentations & Activities:
Questions embedded in ppt, students use responders to answer (after discussion, think-pair-share, etc.) Immediate feedback on correct answer provided → discussion, clarification as needed.

Two levels of High-Stakes Testing at appropriate times during the semester

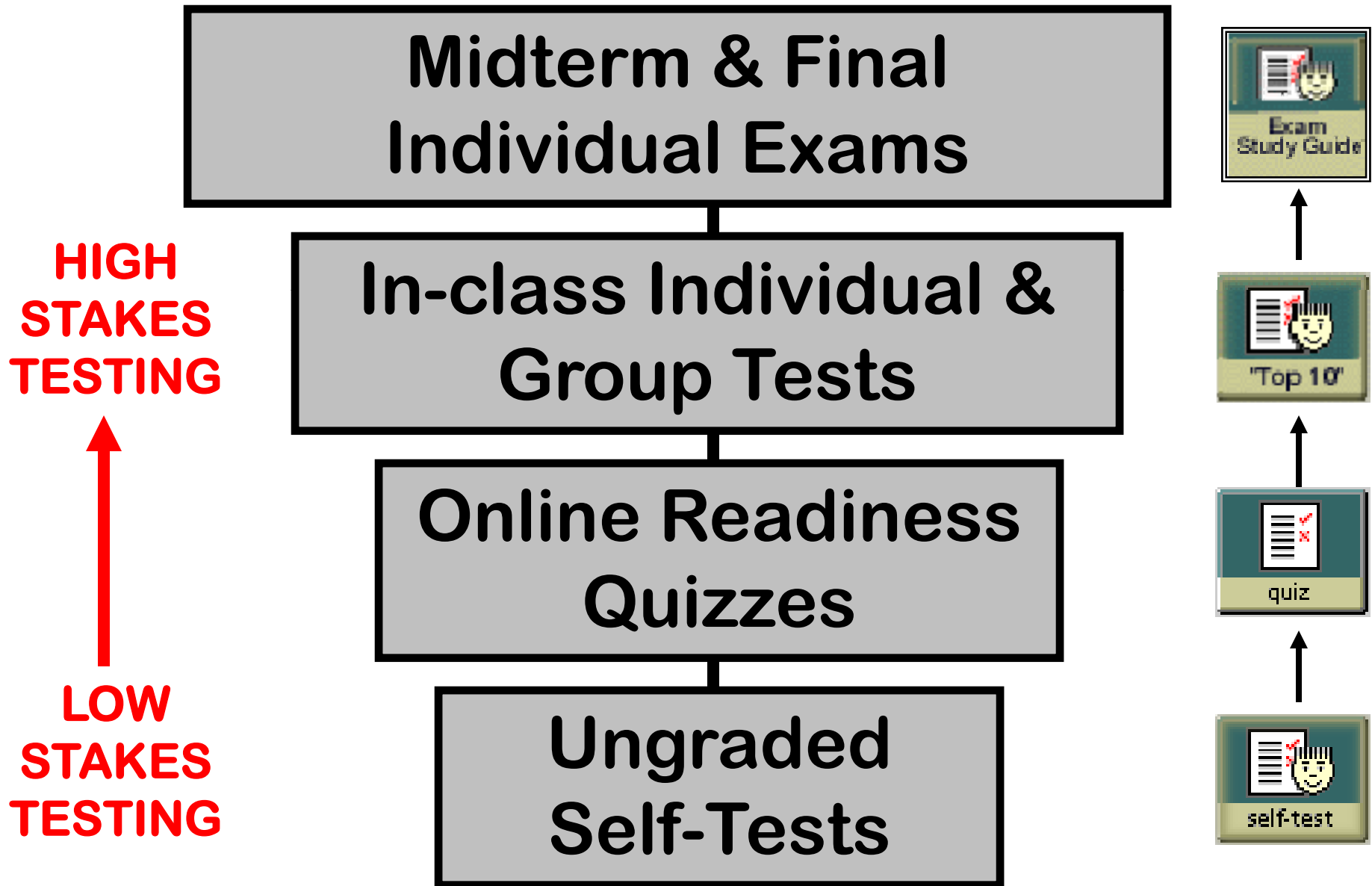
In-Class Tests:

Taken individually, then in collaborative learning groups, using IF-AT form for immediate feedback

Midterm & Final Exam:

Taken individually using IF-AT form for immediate feedback

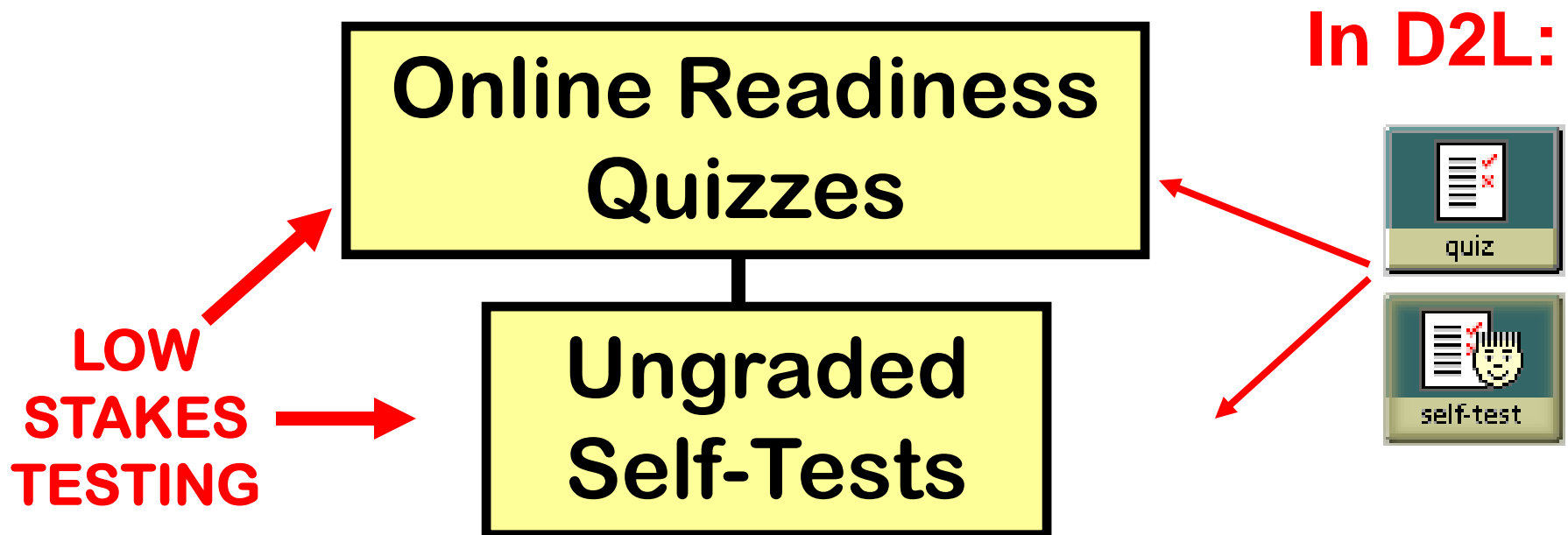
Multi-Tiered Testing Approach:



Multi-Tiered Testing Approach:

**START OUT WITH UNGRADED
SELF-TEST & SHORT ONLINE QUIZ**

To give you feedback in your reading comprehension, you'll start with "low stakes" online quizzes (0 - 5pts each)



Example of Self-Test question:

Question 3

The "greenhouse effect" is _____.

- 1) a natural physical process that operates in all planetary atmospheres.
- 2) a process that began on Earth with the Industrial Revolution and the rapid burning of fossil fuels by human beings.
- 3) the process that has caused the destruction of ozone, leaving a hole in the ozone layer over Antarctica.

Close

No -- don't get the greenhouse effect and ozone depletion mixed up! They are two very different processes. They are linked in certain ways (e.g. CFCs are linked to ozone destruction and CFCs are also greenhouse gases) but as you'll learn during the semester, these two processes have very distinct causes and modes of operation.

1) a natural physical process

Close

Bingo! Taken right from

IGC p. 2

Example of Online Readiness Quiz question in WebCT (now using D2L)

Quiz builds on Self-Test material but with some testing of higher level

The screenshot shows a web browser window titled "WebCT Quiz - Microsoft Internet Explorer". The main content area displays "RQ #6" and student information: "Name: Stella Student", "Start Time: Apr 02, 2001 11:39", "Time Allowed: 15 minutes", and "Number of Questions: 10". There are "Finish" and "Help" buttons. The question is "Question 1 (1 point)" with the text "Greenhouse gases are gases that warm a planet's surface by_____." and four radio button options. A "Save answer" button is at the bottom. On the right, a sidebar shows "Time Remaining: time expired" and a progress grid for 10 questions, all marked as "Unanswered" with red dots.

WebCT Quiz - Microsoft Internet Explorer

RQ #6

Name: Stella Student

Start Time: Apr 02, 2001 11:39 Time Allowed: 15 minutes

Number of Questions: 10

Finish Help

Question 1 (1 point)

Greenhouse gases are gases that warm a planet's surface by_____.

- 1. radiating infrared radiation out to space
- 2. trapping heat coming directly from the Sun and bouncing it down to the Earth's surface
- 3. inhibiting heat loss due to upward air motions, like the glass walls of a greenhouse
- 4. absorbing infrared radiation from the Earth's surface and reradiating some of it back toward the surface

Save answer

Time Remaining: time expired

Unanswered

Answered

1	2	3	4	5
•	•	•	•	•
6	7	8	9	10
•	•	•	•	•

Introduction to Global Change

[Home](#) › [Quiz](#) › [Scores](#) › [Attempts](#)

Clouds play an important role in the planetary energy balance, but their effects on global warming are difficult to model in General Circulation Models (GCMs) because . . .

1. Their typical areal extent is much larger than the resolution of a GCM.
- 100.0% ▶ 2. High-altitude clouds and low-altitude clouds can have opposite feedback effects.
3. Clouds have a lot of water vapor in them and water vapor is a greenhouse gas only some of the time.
4. Clouds interfere with the GCM's ability to reach an equilibrium surface warming.

Score: 1 / 1

Immediate feedback possible as soon as student submits the quiz

8 (1 point)

Which of the following is **NOT** one of the predictions coming from the computer model projections of future CO₂ levels or the predictions of their consequences:

1. An average equilibrium surface warming of between 1.5 and 4.5 degrees C will occur with a doubling of atmospheric CO₂ concentration.
2. The warming caused by increased CO₂ will be evenly distributed in both space and time.
3. Substantial sea level rise will occur and submerge low-lying coastal areas.
4. Ecosystems will be affected by changes in species distributions
- 0.0% ▶ 5. All of the above are expected to occur

Score: 0 / 1

If students miss an RQ cutoff, they may submit an online “ABSOLUTION FORM” to have the cutoff extended. (may use only once during the semester)

READINESS QUIZ ABSOLUTION FORM

You may submit this form **ONCE** to request an extension for a Readiness Quiz if you had a problem getting it in on time due to a technical problem or an oversight on your part (e.g. not following directions, etc.)

IMPORTANT: After you submit the form, be **SURE TO CHECK YOUR EMAIL within the next 24 hours** so that you find out whether your request has been accepted and what the new cutoff day & time is. If you request an extension but then don't follow up in time to complete the RQ by the new cutoff date, you will not be granted a second extension.

Enter your name:

Enter your Group Number:

Enter the date: (e.g. 9-7-06) Enter the time: (e.g. 10:30 pm)

Contact me via:

If you selected "Regular email," enter your email address here:

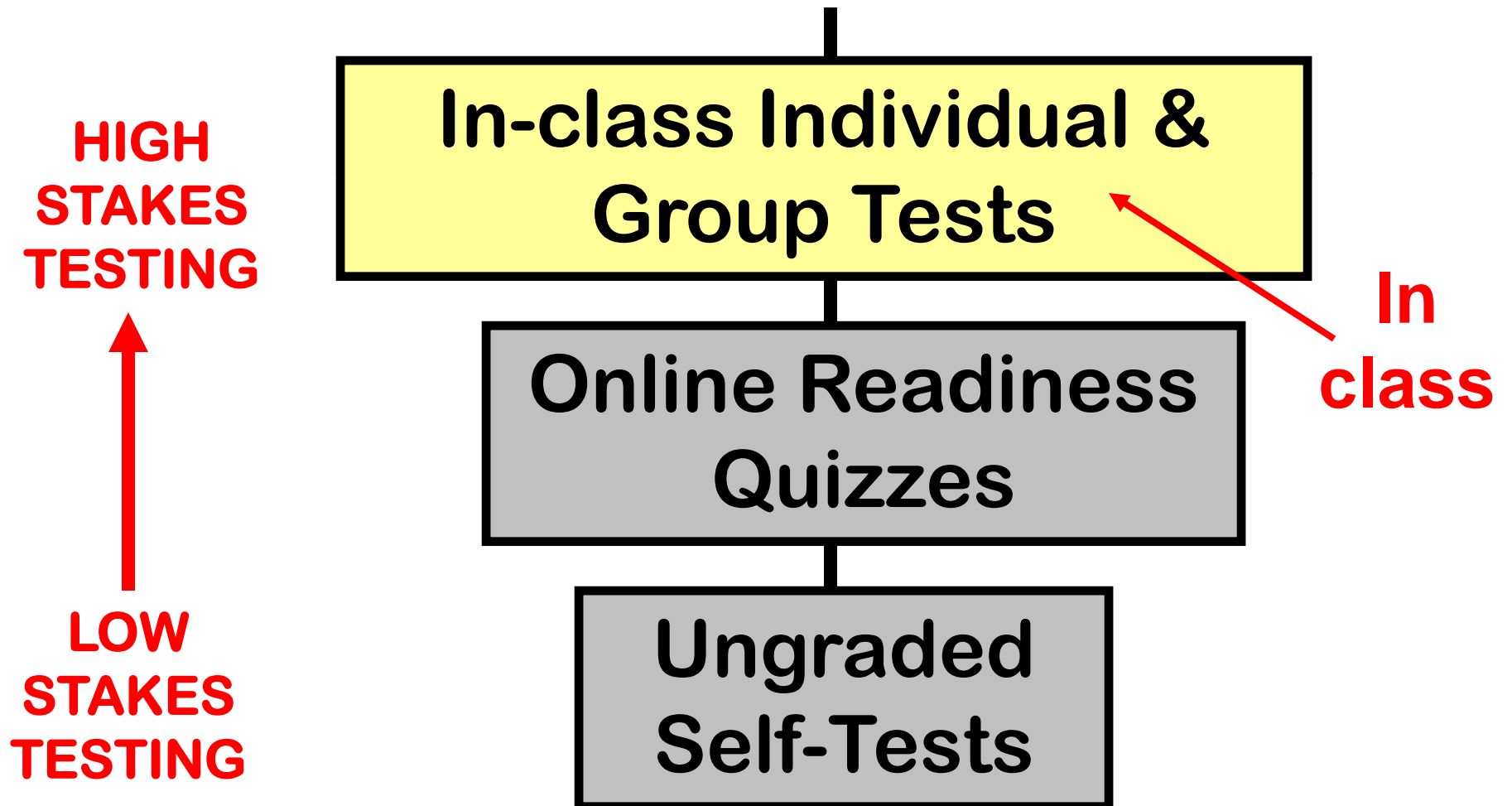
Select the Readiness Quiz you missed or were taking when you had technical problems:

Explain what the problem was in as much detail as you can (i.e., state the reason you were not able to complete the RQ on time) and give me a good reason for granting you an extension on the cutoff time. **You are allowed only one RQ "absolution" and time extension per semester:**

Click below to submit this form. Dr H will use this information to troubleshoot the situation (if it involved a technical problem) and/or forward the information to the UA D2L staff if it is a system-wide problem. If necessary, she will respond to you about the situation via email.

Multi-Tiered Testing Approach:

... and then move on to “higher stakes” 25 pt tests on the course material, taken in class:



In-class testing procedure:

These are short, 10-question quizzes that you'll take after we cover a set of topics in class.

Each question is worth 2 pts = 20 pts for the entire Individual Test.

You'll take it as an individual first . . .



After individual test forms are completed and collected, you'll get into your learning group and take the same test as a group!

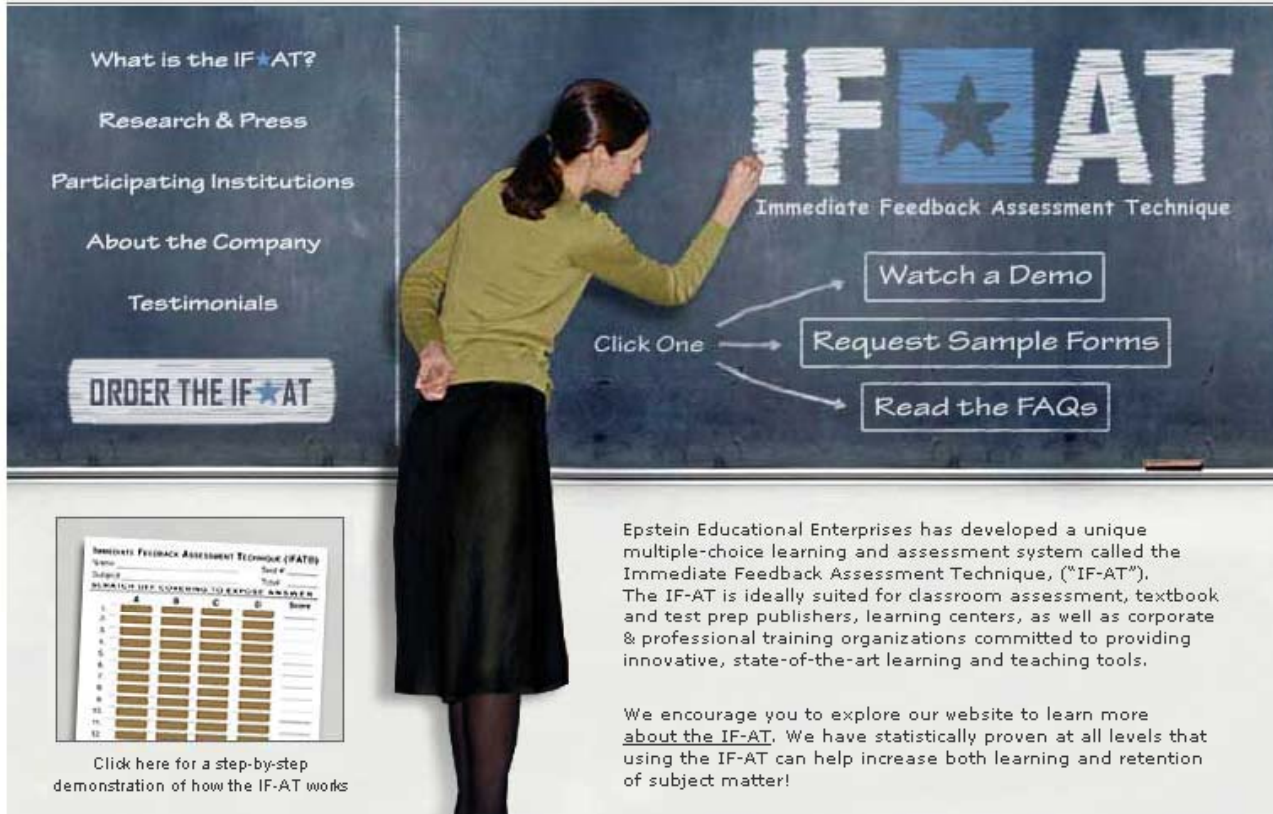


You'll find out your Group Test score right after you take it . . .

HOW? With a new IMMEDIATE FEEDBACK tool for use during in-class tests & exams:

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT)
Name _____ Test # _____
Subject _____ Total _____
SCRATCH OFF COVERING TO EXPOSE ANSWER

	A	B	C	D	Score
1.					_____
2.					_____
3.					_____
4.					_____
5.					_____
6.					_____
7.					_____
8.					_____
9.					_____
10.					_____



What is the IF*AT?

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Participating Institutions

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Testimonials

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Read the FAQs

Immediate Feedback Assessment Technique (IF*AT)

Name: _____ Seat #: _____

Subject: _____ Total: _____

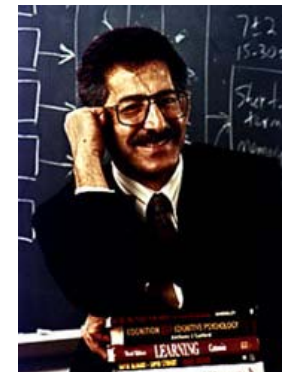
REMAINING ITEMS CORRECTLY EXPRESSED ANSWERS

	A	B	C	D	Score
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

Click here for a step-by-step demonstration of how the IF-AT works

Epstein Educational Enterprises has developed a unique multiple-choice learning and assessment system called the Immediate Feedback Assessment Technique, ("IF-AT"). The IF-AT is ideally suited for classroom assessment, textbook and test prep publishers, learning centers, as well as corporate & professional training organizations committed to providing innovative, state-of-the-art learning and teaching tools.

We encourage you to explore our website to learn more about the IF-AT. We have statistically proven at all levels that using the IF-AT can help increase both learning and retention of subject matter!



Created by:
Michael Epstein,
PhD
Rider University,
NJ

<http://www.epsteineducation.com/>

1.

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT)

Name _____ Test # _____

Subject _____ Total _____

SCRATCH OFF COVERING TO EXPOSE ANSWER

	A	B	C	D	Score
1.					
2.					
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11.					
12.					
13.					
14.					
15.					
16.					

2.

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT)

Name _____ Test # _____

Subject _____ Total _____

SCRATCH OFF COVERING TO EXPOSE ANSWER

	A	B	C	D	Score
1.				★	
2.					
3.					
4.					
5.					
6.					
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8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					

3.

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT)

Name _____ Test # _____

Subject _____ Total _____

SCRATCH OFF COVERING TO EXPOSE ANSWER

	A	B	C	D	Score
1.				★	
2.		★			
3.					
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12.					
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14.					
15.					
16.					

4.

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT)

Name _____ Test # _____

Subject _____ Total _____

SCRATCH OFF COVERING TO EXPOSE ANSWER

	A	B	C	D	Score
1.				★	
2.	★	★			
3.			★		
4.					
5.					
6.					
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11.					
12.					
13.					
14.					
15.					
16.					

Multi-Tiered Testing Approach:

Midterm & Final Individual Exams
with **IF-AT form** (100-115 pts)

In-class Individual &
Group Tests (25 pts)

Online Readiness
Quizzes (5 pts)

Ungraded
Self-Tests (0 pts)

**HIGH
STAKES
TESTING**



**LOW
STAKES
TESTING**

**In
class**

What about feedback for essay questions?

Follow-up posting on Webpage

QUESTION # 28.

(a) Give a scientifically accurate **DEFINITION** of the natural greenhouse effect in your own words:

EXAMPLES OF GOOD ANSWERS – Note how many creative and original ways the same concept can be worded!

Student 1: "The greenhouse effect is the absorption of escaping infrared radiation by greenhouse gases, such as CO₂ and H₂O, which then emit some of this radiation back to Earth. This process warms the planet by preventing some infrared from escaping to space."

Student 2: "The greenhouse effect is the absorption of terrestrial longwave radiation by greenhouse gases, which is then radiated out towards the earth." [Note that this is not a perfect answer because it's not clear what is radiating out towards the earth. Here's a slightly better wording: "The greenhouse effect is the absorption of terrestrial longwave (IR) radiation by greenhouse gases. The GH gases then radiate the IR back towards the earth."]

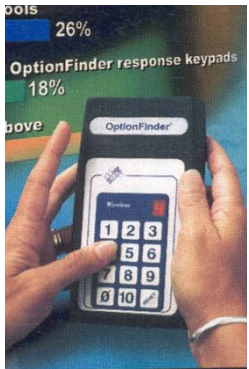
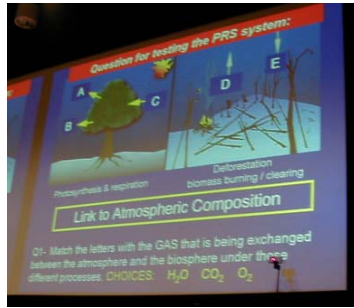
EXAMPLES OF ANSWERS WITH ONE OR TWO PROBLEMS:

Student 7: "The Greenhouse effect happens when the earth emits Infrared Radiation upwards, then some is absorbed by the atmosphere (primarily CO₂ and water vapor) and then reflected back to the earth (longwave radiation). This is needed by the earth or else everything would be extremely cold." [Can you identify what's wrong here? The fatal flaw is the use of the word **reflected** instead of **radiated**. The main IR wavelength ranges involved in the GHE are NOT reflected -- **the IR is absorbed and then radiated**. There is a very small band of IR wavelengths (close to visible light) called Near-IR that can be reflected in the manner that visible light is reflected, but the IR primarily involved in the GHE is NOT reflected like visible light! In this answer there is also a suggestion that the student may think that infrared radiation emitted upward by the Earth is something a bit different than the longwave radiation sent back to Earth. As we use the terms in this class, infrared and longwave radiation are the same thing -- the Earth emits IR / longwave radiation and the GH gases absorb and emit IR /longwave radiation as well.]

**Can
also be
used on
study
guide**

EXAMPLES OF ANSWERS WITH MAJOR PROBLEMS:

Student 8: "The natural greenhouse effect is when some of the gases that are bounced off earth does not leave the ozone and circles back to earth. This is used with gases such as CO₂ and H₂O." [This answer has at least two major problems. First of all **GASES** are described as "bouncing off the earth" which is wrong -- even if the student were to use the term reflecting instead of bouncing, the process of reflection in the context of the energy balance does not apply to gases. What **is** reflected is some of the incoming shortwave (UV and visible) radiation, BUT the GHE does not involve shortwave radiation, only terrestrial longwave. Second, for some reason the term ozone is introduced -- but in an odd way, almost as if ozone is being used as a synonym for the troposphere. Overall, the answer uses terms and concepts wrong, is poorly phrased, and presents information that doesn't mean anything.]



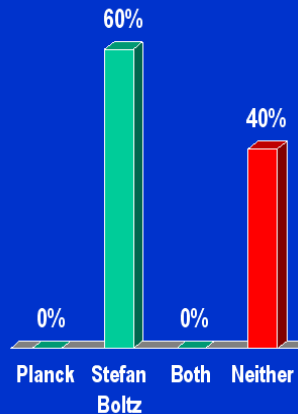
In-Class Feedback using A Responder System

Using the responder system in class, the instructor can help students refine their thinking on “tricky” concepts and give them pointers on how to interpret and more carefully answer such questions.

I = correct answer

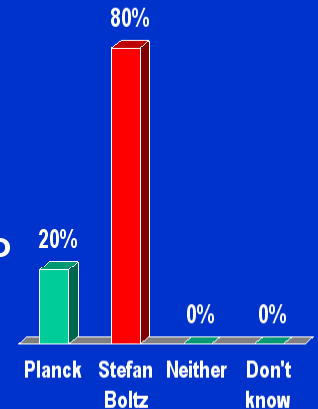
Q2 – Which would you use: the **Planck Function** or the **Stefan-Boltzmann Law** to accurately compute the total amount of **ENERGY** emitted to space by planet Earth?

1. The Planck Function
2. The Stefan Boltzmann Law
3. Both of them together
4. Neither one is appropriate because the Earth is NOT a blackbody



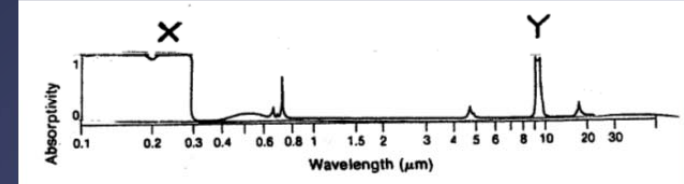
Q3 – Which would you use: the **Planck Function** or the **Stefan-Boltzmann Law** to compute the total amount of energy emitted to space by planet Earth, **IF you assume the Earth emits like a blackbody & you know the Earth's temperature?**

1. The Planck Function
2. The Stefan Boltzmann Law
3. Neither one is appropriate because you would need to know the wavelengths of radiation the Earth emits
4. Don't know



Responder-based “Game Show” format can be used for Exam Review

The part of this O_3 absorption curve that is linked to OZONE operating as a GREENHOUSE GAS.



What is...

1. Part X of the absorption curve
2. Part Y of the absorption curve
3. Both Parts X & Y working together
4. Neither X or Y – OZONE is NOT one of the Greenhouse Gases!



Atmospheric Structure and Composition	Energy Balance	Matter & Thermodynamics	Laws of Motion & Radiation	Odds & Ends
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300
400	400	400	400	400
500	500	500	500	500



Summary

Multi-Tiered Testing Approach:

**Immediate
Feedback**

Midterm & Final Individual Exams

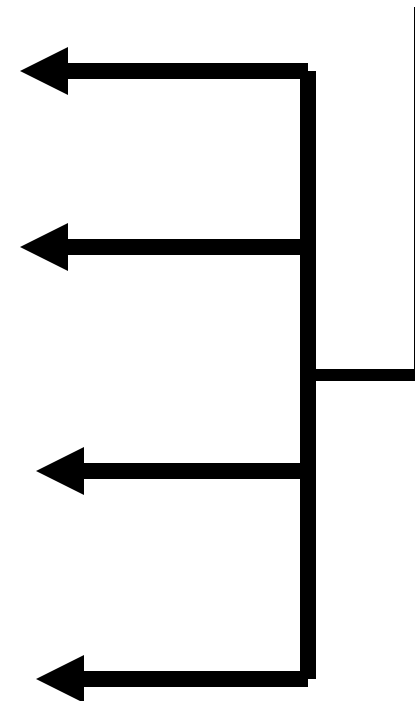
**In-class Individual &
Group Tests**

**Online Readiness
Quizzes**

**Ungraded
Self-Checks**


**HIGH
STAKES
TESTING**

**LOW
STAKES
TESTING**



ASSIGNMENTS

Fall 2006 Semester

 = Assignment has been completed or is past due

These are graded in-class and homework assignments.
For READING & ONLINE QUIZ assignments, [CLICK HERE](#)



THINKING DEEPLY ACTIVITIES

(you must complete two; you may complete 3
up to 5 pts each, max you can earn = 10 pts)

GROUP ASSIGNMENTS

(in-class activities)



G-1 Group Ecological Footprint

(in class on 8-29-06)

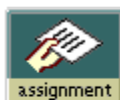
Graded by Dr H



G-2 Organizing the Periodic Table

(in class on 8-31-06)

Graded by Adam



G-3 Your Car & Global Change w/ "GC McLaughlin Group" Discussion

(in class on 9-14-06)

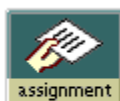
Graded by Rebecca



G-4 Applying the Energy Balance

(in class on 9-26-06)

Graded by Ela



G-5 - Classifying Wood Samples for Dendrochronologic Use

(in class on 10/10 & 10/12)

Graded by Jeff



G-6 Volcanism & Climate

(in class on 11/2)

being graded by Ela & Adam



G-7



G-8



G-9 Global Warming Debate Participation in Class

(within your group)

on Tue Dec 5

INDIVIDUAL ASSIGNMENTS

(homework assignments)



I-1 My Ecological Footprint (15 pts)

was due Aug 29

Graded by Jeff



I-2 Sun Safety & the Electromagnetic Spectrum

was due Tue Sep 19 (35 pts)

Graded by Adam



I-3 Tree-Ring Crossdating (25 pts)

was due Tue 12

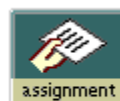
Graded by Jeff



I-4 The Bristlecone Tree-Ring Report (50 pts)

was due Tue Oct 31

being graded by Rebecca



I-5 Linking-to-Life Slide (20 pts)

Due Tue Nov 21

(Details to be explained in class)

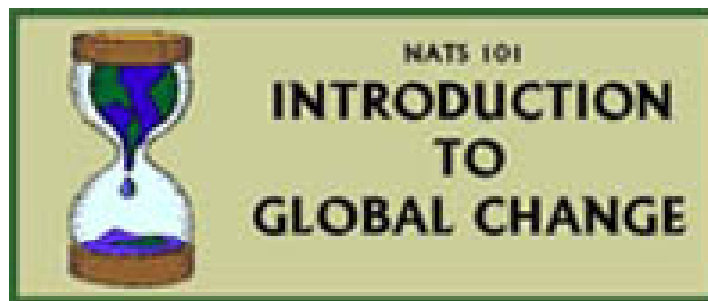


I-6 Global Warming Debate Preparation (25 pts)

Due Tue Dec 5

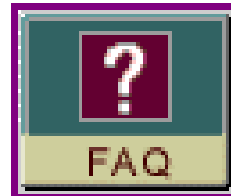
(Details to be explained in class)

WITH ALL THIS GOING ON, HOW DO WE ASSIST THE STUDENTS TO KEEP TRACK OF REQUIRED ACTIVITIES, READINGS, CUTOFFS, DEADLINES, ETC. . . . ?



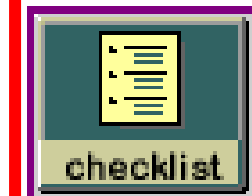
class website

[NATS GC Webpage](#)



FAQ

[Course FAQ](#)



checklist

[Checklist Tool](#)



Follow Up

[Class Follow Up](#)



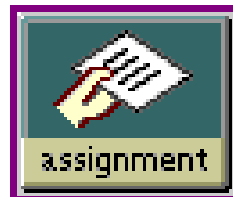
dropbox

[Drop box](#)



posts

[Discussion Posts](#)



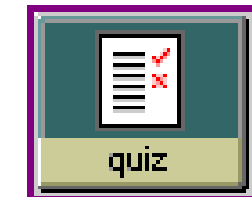
assignment

[Assignments](#)



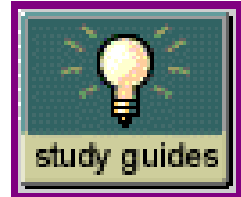
self-test

[Self Tests](#)



quiz

[RQ's](#)



study guides

[Study Guides](#)

Checklists
ABOUT THE CHECKLIST TOOL
Week 01 - Tasks for Aug 20-26
Week 02 - Tasks for Aug 27 - Sep 2
Week 03 - Tasks for Sep 3 - 9
Week 04 - Tasks for Sep 10-16
Week 05 - Tasks for Sep 17 -23
Week 06 - Tasks for Sep 24 -30
Week 07 - Tasks for Oct 1 - 7
Week 08 - Tasks for Oct 8 -14
Week 09 - Tasks for Oct 15 -21
Week 10 - Tasks for Oct 22-28
Week 11 - Tasks for Oct 29 - Nov 4
Week 12 - Tasks for Nov 5 - 11
Back

The D2L Checklist Tool

Week 12 - Tasks for Nov 5 - 11

Textbook Reading

- Read Chapter 16 in IGC on Global Warming**
Due: Nov 9, 2006
- Read (or re-read) Hobson Ch 9 pp 467-481**
Due: Nov 9, 2006
This is an excellent summary of "the overarching issue" of global warming & is a good reinforcement for IGC Chapter 16's more detailed treatment.
- Read (or re-read) IGC Ch 6 pp 109-116 on model results**
Due: Nov 9, 2006
This section covers the strengths and weaknesses of the models that tell us about the projections of future climate and the impacts of global warming.

Class Notes Reading

- Class Notes reading pp 115-121**
Due: Nov 9, 2006
This information comes straight from the "Synthesis Report" of the Third Assessment Report (TAR) of the Intergovernmental Panel on Climate Change (IPCC). Spend some time reading through the IPCC Tables to learn the answers to the following:
--What is well established (i.e., robust findings) and what is still uncertain? (pp 117-118)
-- What is the observed evidence for GHG and temperature increases? (p 120)
-- What possible impacts could occur due to global warming? (p 121)

Self Test

- Self Test ST-7**
Due: Nov 9, 2006
After reading **IGC Chapter 16 & Hobson Ch 9 on Global Warming**, test your understanding of the material by working through **Self Test ST-7**

Readiness Quiz

- RQ-7**
Due: Nov 9, 2006
Complete **Readiness #7 (RQ-7)** before **noon on THURSDAY Nov 9** after you have prepared yourself by doing the textbook reading noted above and working through Self Test ST-7.

Homework Assignments

- ASSIGNMENTS I-5 & I-6**
The remaining two individual assignments for the semester are now available for you to get going on -- see the **D2L ASSIGNMENTS link**. Both of these assignments will be explained in more detail in class this week.
- THINKING DEEPLY ACTIVITIES**
A variety of [Thinking Deeply Activities](#) are posted under ASSIGNMENTS in D2L. To earn your 10 pts, complete at least two of these before the end of the semester.

SUMMARY

Midterm & Final Individual Exams

**In-class Individual &
Group Tests**

**Online Readiness
Quizzes**

**Ungraded
Self-Checks**

**HIGH
STAKES
TESTING**

**LOW
STAKES
TESTING**



Multi-Tiered Testing Approach:

The various testing tiers progress from low-stakes testing (non-graded self-tests) to high-stakes testing (major graded exams).

Tiered approach allows the student to gain knowledge and confidence with the material at each progressive level because of the immediate feedback provided.

A caveat . . .

- To facilitate higher-level learning, detailed feedback on **SELF TESTS** must be based on instructor's accumulated experience of how students tend to interact with material; plus awareness of common misconceptions, learning pitfalls, etc.
-- not a job for new TA assigned to course for the first time!

REFERENCE:

Larry Michaelsen, L. Dee Fink, Robert H. Black (1996). What every faculty developer needs to know about learning groups, in L. Richlin, ed. *To Improve the Academy*, Vol 15 (pp 31-57). Stillwater, OK: New Forums Press and the Professional and Organizational Development Network in Higher Education.

... and assorted workshop handouts

See also:

<http://www.ou.edu/idp/teamlearning/index.htm>



MORE ON THE IF-AT FORM

WebCT anonymous online survey tool used to assess students' attitudes about the form:

Question:

I liked using the IF-AT form during the Midterm Exam.

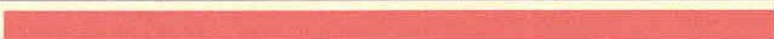



1. Strongly agree
 2. Agree
 3. Neutral
 4. Disagree
 5. Strongly disagree

Answer	Value	Frequency Distribution	
1	0%	74	
2	0%	20	
3	0%	1	
4	0%	3	
5	0%	1	

Question:

The IF-AT Form helped me on the test because knowing the right answer to some questions helped to guide me to the right answer in other questions.






1. Strongly Agree 2. Agree 3. Neutral 4. Disagree 5. Strongly Disagree

Answer	Value	Frequency Distribution	
1	0%	48	
2	0%	30	
3	0%	17	
4	0%	4	
5	0%	0	

Question:

The IF-AT form had the following effect on my morale during the Midterm Exam:

- 1. It had a positive effect on my morale because I gained confidence with each correct answer I scratched off.
- 2. It had a positive effect on my morale because I knew I could get partial credit even if I didn't get it right the first time.
- 3. It didn't affect my morale one way or the other.
- 4. It had a negative effect on my morale because I lost confidence when I discovered I was wrong. I would rather not have known.
- 5. It had a negative effect on my morale because I got more and more anxious with each question, knowing I'd already gotten some wrong.

Answer	Value	Frequency Distribution	
1	0%	46	
2	0%	45	
3	0%	4	
4	0%	2	
5	0%	2	

Student comments from anonymous online survey:

“I thought the IF-AT form was helpful because even though I would get a couple answers wrong the first time I knew that I could still get partial credit for it. I also like it because it is kind of fun and different from ordinary tests. I just wish that the questions were a bit easier, that’s all.”

“The If-At form helps me understand just why I got an answer wrong, versus other classes where you lose a point or two without any explanation. The best way to learn is from one's mistakes.”

“I feel it is a very fair way to do a test because we are really learning and it forces you to learn what the correct answer is instead of just getting one try and not knowing if you are right or wrong.”

“I thought it was a good way to take the midterm. I liked knowing when I got the right answer and when I missed an answer, it made me want to concentrate harder and get the next one right.”

“The If-At form made the test more interesting by having to scratch off the answers. It helps me to keep from zoning out too much during the test.”

“The form was a good tool because it allowed me to have partial credit for answers if I wasn't sure between two answers.

This also helped because if I got the answer right the second time it allowed me to straighten out the two concepts in my head. It allowed for interactive learning with the test.”

“I really liked knowing what questions I got right or wrong and then using those questions to help answer later questions.

It also helped my confidence in the test because I knew right away that I did really well, and I believe that that also helped me in the second (essay) section of the test.”

“I got a lot better grade on the test because of the If-At form. Sometimes I read questions wrong when I really understand the material.

Because we use these forms I was able to correct my mistakes within the next try. I got an A but would have certainly had a B if not for the form. Thanks.”





“It was good until the last couple questions. When I missed some of the questions, I became discouraged.”

“On this test I truly believe that for me it wasn't a positive thing. I didn't do very well so when I knew that, I felt horrible leaving the test.”

Question:

The IF-AT form should be used again on the Final Exam in this course.

1. Strongly agree 2. Agree 3. Neutral 4. Disagree 5. Strongly disagree

Answer	Value	Frequency Distribution	
1	0%	78	
2	0%	15	
3	0%	4	
4	0%	2	
5	0%	0	