

*Breakout Session for*  
**Teach STEM Students *How* to Learn:  
Metacognition is the Key!**



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**Louisiana State University**



# What is the task described here?

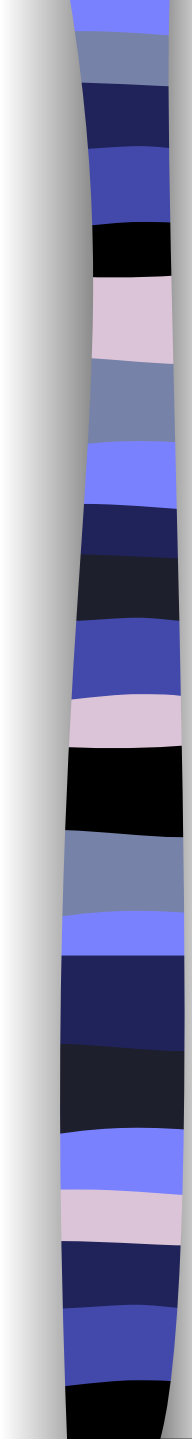
“The procedure is actually quite simple. First, you arrange things into different groups. Of course, one pile may be sufficient depending on how much there is to do. If you have to go somewhere else due to lack of facilities, that is the next step. Otherwise, you are pretty well set. It is important not to overdo things. That is, it is better to do too few things at once than too many. In the short run this may not seem important but complications can easily arise.

A mistake can be expensive as well. At first, the whole procedure will seem complicated. Soon, however, it will become just another facet of life. It is difficult to foresee any end to the necessity for this task in the immediate future, but then one can never tell. After the procedure is completed, one arranges the materials into different groups again. Then they can be put into their appropriate places. Eventually, they will be used once more, and the whole procedure will then have to be repeated. However, that is part of life.”



# Ten Things Most Faculty Don't Know

1. It's not about what we say, it's about what students hear and are thinking.
2. The amount of learning is often inversely proportional to the clarity of the explanation of the topic
3. "Good" students will not seek help; they must be approached and invited by the instructor; it's all about the relationship
4. How to teach students *how* to read, *how* to listen, *how* to write, and *how* to learn
5. Students can learn to be their own tutors

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6. Showing students examples of others who drastically improved motivates them to put in the time and the effort it takes to improve
  7. The message has to be “you’re brilliant; we’ll help you soar” rather than “you were great in high school, but college requires more”
  8. Students CAN be taught *how* to learn and *how* to study ([www.howtostudy.org](http://www.howtostudy.org))
  9. Emotions play a powerful role in learning!
  10. There are not smart students and students who are not smart; there are students who have and use strategies, and those who don’t !

# IMPACT

# Your GPA

Spring 2011

## Workshop for First Year Students

*Attend one of the following:*

**Session 1**  
January 14  
1:00-3:00 PM

**Session 2**  
January 27  
5:00-7:00 PM

**Session 3**  
February 12  
1:00-3:00 PM

*All sessions held in 130 Nicholson Hall.*

## Register Now

[cas.lsu.edu](http://cas.lsu.edu)

Center for Academic Success  
B-31 Coates Hall  
225.578.2872

First Year Experience  
128 Johnston Hall  
225.578.1188



**LSU**

# IMPACT Program Attendance

Year	# 1 <sup>st</sup> Year Students	Freshmen on W/P	Transfer on W/P	Total W/P	1 <sup>st</sup> Year Students on W/P
2010	5,481	717	153 (854)	870	13%

- First year Warning & Probation = 466
- Other students who were not required = 230
- Total Attendance at IMPACT= 696
- About ½ of required students attended

# IMPACT GPA Results

Amount of GPA change from Spring to Fall  
for Impact Required Students

Group	Attended IMPACT	Did Not Attend
Fall	1.30	1.31
Spring	1.83	1.22
Total Change	0.53	-0.09

For an overall GPA difference of **0.62!**

# IMPACT Retention Results

- Students on warning or probation who attended:
  - were retained at a 20% higher rate (same as 2009 cohort)
  - were retained at the same frequency of students who lived their first year in a res hall
  - doubled their odds of coming back to LSU



# Student IMPACT Results

- Students rated their academic confidence before and after IMPACT on a scale from one to ten. Students' average confidence level beforehand was an average of 4 and afterwards was an average of 7.
- Since IMPACT to what extent have you implemented and/or improved your study strategies? 93% responded that they have made some type of improvement. Whereas 65% said they made significant improvements in their study habits.
- 75% of students said they improved attendance in their classes after attending IMPACT.

# Focus

- Mindset
- Metacognition
- Active Learning

# IMPACT Content

- Services
- How I Learn
- Super Strategies
- Get Organized
- Reduce My Stress

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I want to attend/utilize:

### SUCCESS STORIES

“ [The CAS Consultant] was not there just to give me tips. She really helped me learn and understand what I needed to do to prepare in advance. ”

-- Student

[MORE...](#)

### CAS NEWS >

#### Increasing Retention and Grad Rates of LA Students

[Click Here for Legislator Spouse Presentation](#)

#### Provost's Symposium on Retention

# Sensory Preference



**VISUAL**



**AURAL**



**READ/WRITE**



**KINESTHETIC**

# How would you study?

## **Scenario A:**

You have a test on chapters 1-3 on Friday

## **Scenario B:**

You will be required to teach the class chapters 1-3 on Friday

Would you study differently? Why?

# Super Strategies

- Chunking Information
- Concept Mapping
- Judgment of Knowledge

# Chunking

↓ ↓ ↓ ↓

A E 1 I O 2 U A 3 E I 4 O U

C B S A B C N B C T N T

L O B P E T C A R J A M



# Semester Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
6 JANUARY Week 1	7	8 Orientation	9 Orientation	10 Orientation	11	12
13 Week 2	14 Classes Begin	15	16	17	18	19
20 Week 3	21 Martin Luther King Holiday	22 Classes resume Final date for dropping without receiving a "W" <b>EXAM</b>	23	24 Final date for adding courses	25	26
27 Week 4 <b>PROJECT</b>	28	29	30 <b>EXAM</b>	31	1 FEBRUARY	2
3 Week 5	4 Mardi Gras Holiday	5 Mardi Gras Holiday	6 Mardi Gras Holiday	7 Classes Resume	8	9 <b>FAMILY REUNION</b>
10 Week 6	11	12	13	14 <b>EXAM</b>	15	16
17 Week 7	18	19	20	21	22	23
24 Week 8	25 <b>EXAM</b>	26	27	28	29	1 MARCH
2 Week 9 <b>PROJECT</b>	3 MIDTERMS	4 MIDTERMS <b>EXAM</b>	5 MIDTERMS	6 MIDTERMS	7 MIDTERMS	8 MIDTERMS <b>FAMILY WEDDING</b>
9 Week 10	10	11	12	13	14	15
16 Week 11	17 Spring Break	18 Spring Break	19 Spring Break	20 Spring Break	21 Spring Break	22
23 Week 12	24 Classes Resume	25 <b>EXAM</b>	26 <b>RESEARCH PAPER</b>	27	28	29
30 Week 13 Course scheduling for fall begins	31 <b>EXAM</b>	1 APRIL	2	3 <b>EXAM</b>	4	5
6 Week 14	7 Final date for resigning from university and/or dropping courses	8	9 <b>PROJECT</b>	10 <b>EXAM</b>	11	12
13 Week 15	14	15	16	17	18	19
20 Week 16	21	22	23	24	25	26
27 Week 17	28	29	30 Concentrated Study Period	1 MAY Concentrated Study Period	2 Concentrated Study Period	3 Classes end Concentrated Study Period

Find at:  
[www.cas.lsu.edu](http://www.cas.lsu.edu)

# Weekly Planner

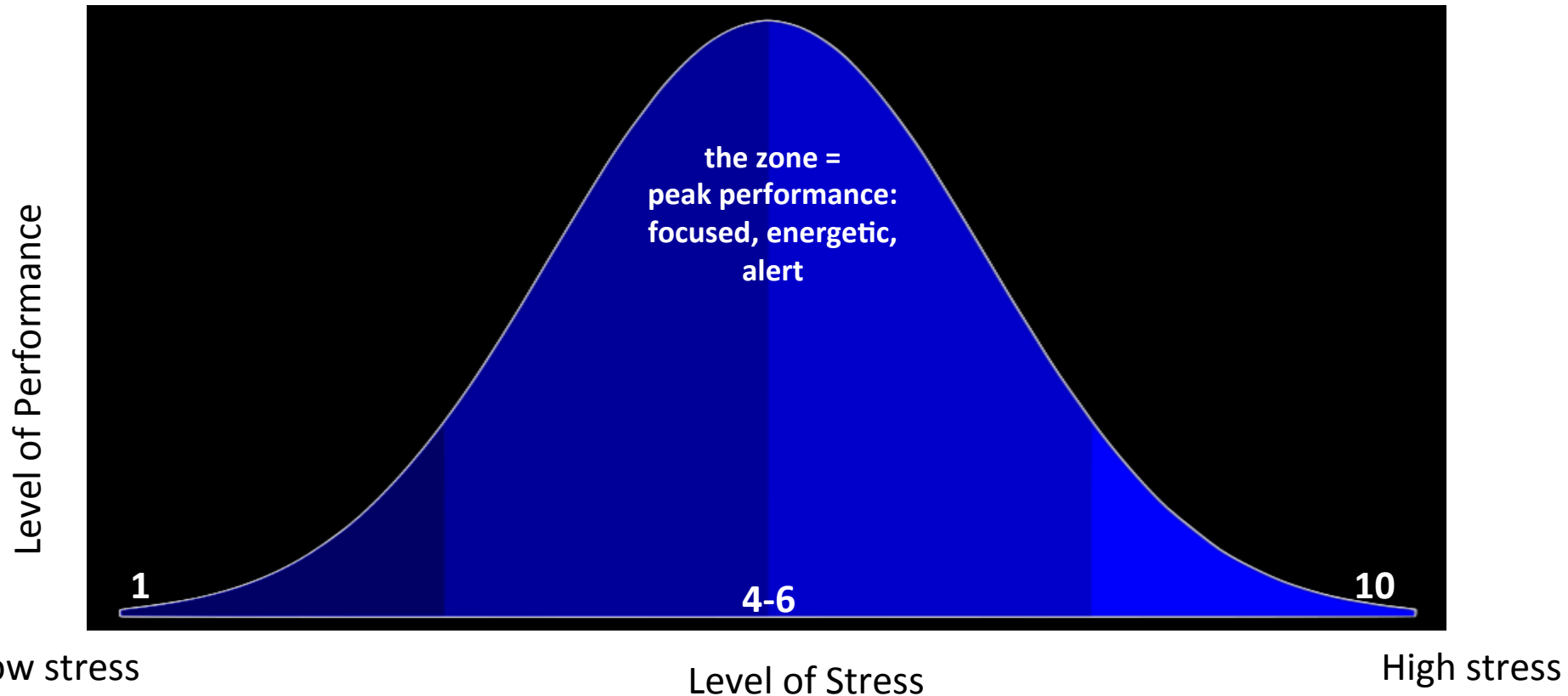
Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Sat.	Sun.
7:00-7:30			Gym				
7:30-8:00		Bio class	Gym	Bio class			
8:00-8:30	Gym	Bio class	Work	Bio class			
8:30-9:00	Gym	1201 class	Work	1201 class			
9:00-9:30					Gym		
9:30-10:00	ISS				Gym		
10:00-10:30							
10:30-11:00	Art class	's	Art class		Art class		
11:00-11:30	1001 class	Lunch	Art 1001 class		Art 1001 class		
11:30-12:00	Lunch	Lunch	Lunch	Lunch			
12:00-12:30	Lunch		Lunch	Lunch	Work		
12:30-1:00	Work		Work		Work		
1:00-1:30	Work		Work		Work		

WEEKLY PLANNING

# What exactly IS Stress?

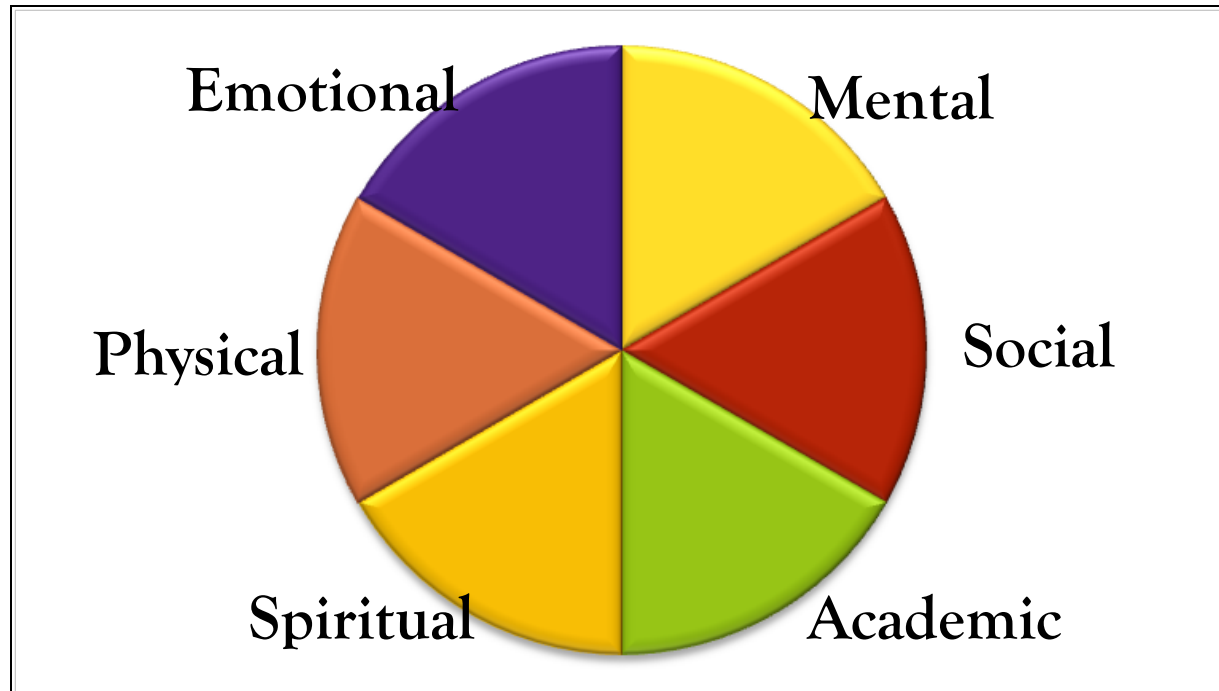
Stress is a force & a feeling that may be

- detrimental: excessive or chronic stress decreases performance
- beneficial (eustress): a healthy level & duration contributes to performance



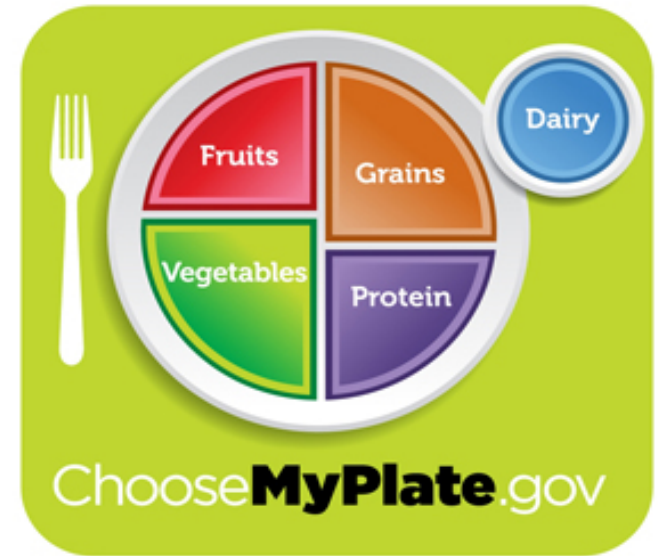
# Stress Reduction

Lead a healthy balanced lifestyle



# Stress Reducers

- Eat healthy & get plenty of routine sleep (Physical)
- Be prepared for your classes & tests (Academic, Mental)
- Take a walk; exercise (Physical, Emotional, Mental, Social, Spiritual)
- Meet with friends, laugh (Emotional, Social)



# Stress Reducers

- Talk kindly to and encourage yourself



- Relax: take a deep breath

- Stretch: neck and shoulder rolls

- Visualize / Imagine



# Center for Academic Success

## **Learning Strategies**

- Workshops/Programs
- Consultations
- On-line Resources

## **Academic Support**

- Tutorial Center – 141 Middleton
- SMARTHINKING – online tutoring
- Supplemental Instruction

*Please complete your evaluation and turn in when you sign out. Thank you!!*

*[www.cas.lsu.edu](http://www.cas.lsu.edu)*

# Results from Spring 2010

I had fallen below the GPA requirement my scholarship demands, and I was sure there was no hope for me and maybe I just wasn't cut out for it. However, after IMPACT I really utilized all the tools I was given ... With all these tools, I was able to discover that I do have time for other fun and important things, such as a social life and most importantly, sleep... I can now proudly say that after beginning college with a 2.79 GPA, I have just recently finished midterms week with a solid 4.0!!

Thank you so much, and please continue with programs like IMPACT and CAS!!





Follow Up Activity:

## **Using Cognitive Science Information to Improve Student Performance**

- **Describe one strategy you (or your faculty) can implement to help students achieve greater success in the courses you (or they) are teaching**



# Special Note

Please visit the CAS website at  
[www.cas.lsu.edu](http://www.cas.lsu.edu).

We have on-line workshops that will introduce you and your students to effective metacognitive strategies, including concept mapping. Have fun turning your students into expert learners!

Saundra McGuire