Welcome to Class

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• PhD Biochemistry and Molecular Biology
• Biochem & Biotech Program
• Dept of Chemistry
• Non-Small Cell Lung Cancer Research
• Mechanic of the kitchen and the cell!

What is this class about

Dragon Core Area 4 with Lab
• Learn about science, cooking, the nature of molecules and an appreciation for scientific processes
  • In class science and cooking demonstrations and hands on activities
  • Each week focus on a different food or science principle
  • 6 hrs of in-class experiments
  • 6 hrs of at home experiments
• Not Rachel Ray or a cooking class (possibly Hell’s Kitchen)!

See Syllabus for details

Grading

There will be four examinations, three during the semester and one during finals. The final is not cumulative. Each exam is worth 250 points.
  o A cumulative final will be available for those students who wish to replace one of their first three tests!
    This test will be given after the fourth exam during finals
There will be 6 observations based on the at-home or in-class experiments. Each will be worth 25 points. The assignments and write-ups for each experiment and deadlines are posted on the web.
Late assignments will be deducted points (5 pts/week) until half of the possible points are deducted.
There will also be five, 5pt in-class pop quizzes – (one make up quiz will be available on line at the end of the class).
Plagiarism or cheating will result in a deduction of 25 percent of the total points from that assignment with an option to fail the course
There will be an extra credit assignment worth 25 pts. Details TBA

The cut offs for grades are A-90%, B-80%, C-70%, D-60% and F-50%.
These cut offs are tentative and depending on how the class performs, may be altered.

Grading:  
4 Exams  1000 pts (250 pts each)
6 Lab Reports  150 pts (25 pts each)
5 In-Class Pop Quizzes  25 pts (5 pts each)
Total  1175 pts

Information covered in cooking demonstrations, in-class and at-home demonstrations will be on the test!
Take good notes and don’t tune out.

Textbook – readings are required. Some questions will be directly from the book and not just the notes.

Make-up examinations: These will be given only for major, documented emergencies (illness, death in family…) AND, unless impossible, prior notice AND approval is required. Missed examinations will result in a zero. You must meet with the instructor to make further arrangements.

Attendance Policy: While attendance is not required, it is critical for learning Science of Cooking. There are a number of in-class activities and quizzes that cannot and will not be made up. We will be covering a great deal of material very quickly.

Missing In-Class Experiments – lose points or make up with extra work – NOT extra credit. Make up ONLY with excused absences! Concerts and weddings (unless it is your own) do not count.
In Class and At Home Expts
See the class webpage for a link to the specific report and grading requirements

In-Class Experiments -
• Cooking With Gas, Induction, Electric, Microwave & Teflon!
• Tempering Chocolate And Dark Vs Milk Chocolate
• Ice Cream – Freezing Pt Depression, Taste Test and Home Made Ice Cream

At-Home Experiments –
• Make your own Mozzarella and Ricotta
• Chemistry of Browning of Fruit
• Science of Eggs, Osmosis and Pumping up your Veggies!

How to use these slides
Text in black or Red – will show up in your handout. There will still be times where I talk outside of the ppt files, use the white board or just do some cool demonstrations.
- use the back side of the prior sheet for additional space for notes.
- text in blue on the slide is text not included in your lecture note handouts. If I go to fast, slow me down!

Why Cooking? Why Science?
Food is basic principle driving most of our human needs.
Great way to learn science and understand the nature of the world around us
• Foods are complex mixtures of chemicals
Being a better scientist will make you a better cook
- Besides science is cool

Cooking from a Recipe
Kind of like putting a model together – unless you know what the parts are, it is a mystery until it is done
• Half the fun is creating something new or a twist
• The other half is just getting it done right
• Learn what the function of each component
  • Acid, base, protein, carbohydrate or fat
  • Is there something special about what you are doing? – why do we let meat rest?...

Lets get started...

Scientific Method –
• Starts with an observation, which develops into a question.
• Experiments (cooking or a research lab) is not a practice in … “lets see what happens”.
  • Waist of time and energy
  • Hypothesis drive scientific discovery
  • Hypothesis is a statement not a question.
  • Cooking experiments should be hypothesis driven too
  • Proper scientific methods limits changes to one variable at a time!

Examples...

Scientific approach to ice cream
 - Initial questions – how can we make fat free ice cream
  • Hypothesis is generated to drive the experiment
  • Solves the problem or question and designs experiments to support or falsify (not prove) the hypothesis
  • Hypothesis might be that the addition of a non-digestible fat will make the ice cream tasty
  • Then design an experiment to test that...

How does science impact food?  
And now we eat

State of Matter anyone?