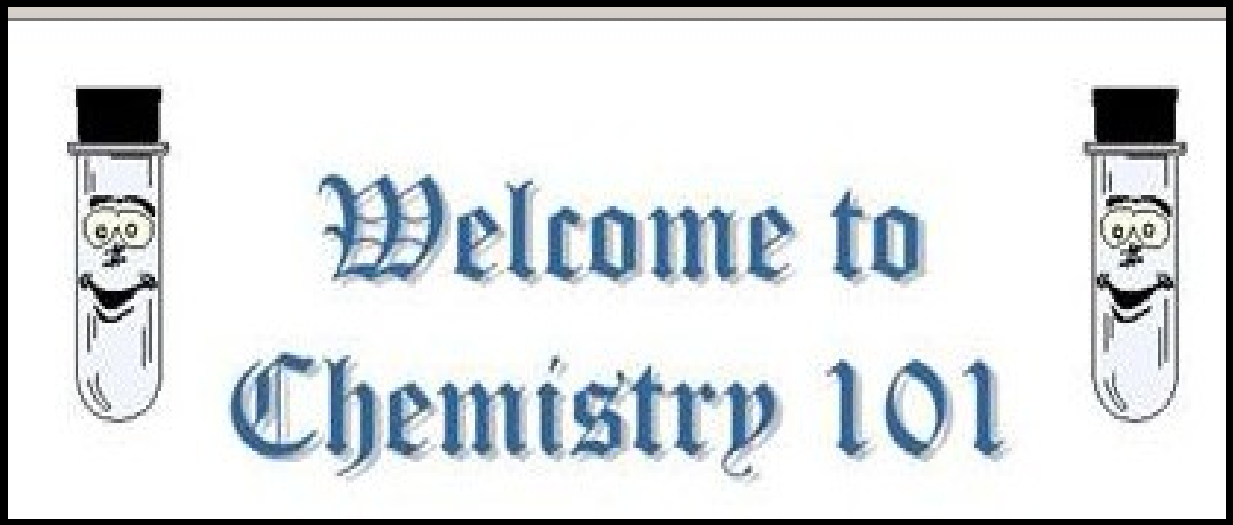
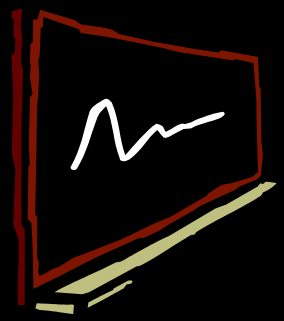
Chemistry 101-Instructor's Media



LPT

My Blackboard Site

Now > 4400 hours development time



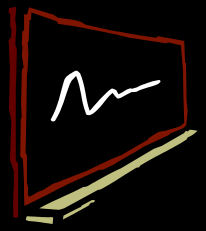
Chemistry Texts extremely expensive
~ $180 when I started at WCC

So,
My Blackboard site was designed to be independent of texts
Everything needed for an A grade was put on the site
Typically ~ 90% students using “my stuff ” get an A or B

When WCC demanded intellectual property rights to everything,
I removed “my stuff ” from Blackboard.

LPT

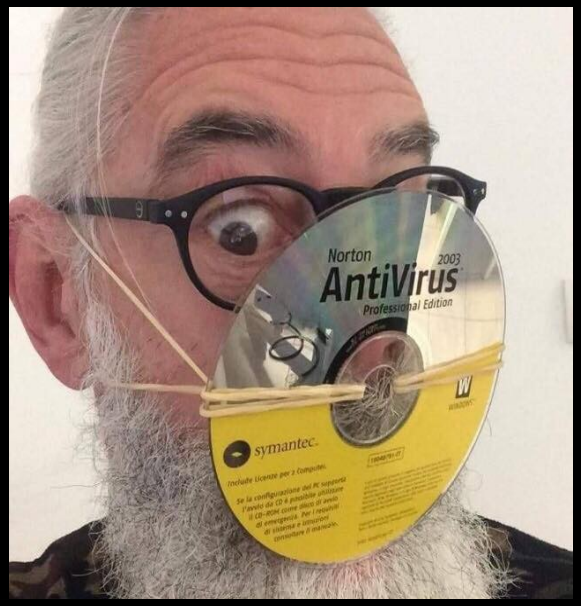
As of Fall semester, 2015
Documents authored by the instructor have been removed from Blackboard to protect instructor's intellectual property rights



Their location in Blackboard Site Guide has been preserved (to assist in knowing what is available)

Registered students will have access to instructor authored materials
Media access available during first class meeting

LPT

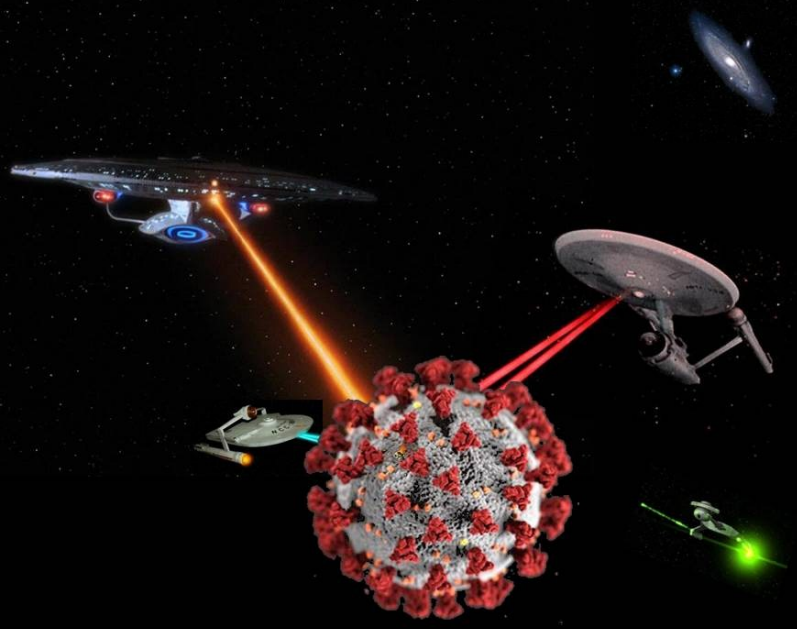


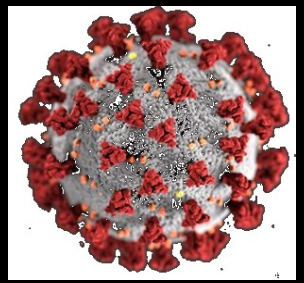
Off-Campus Classes

Author content now on a web site.

url given at first meeting

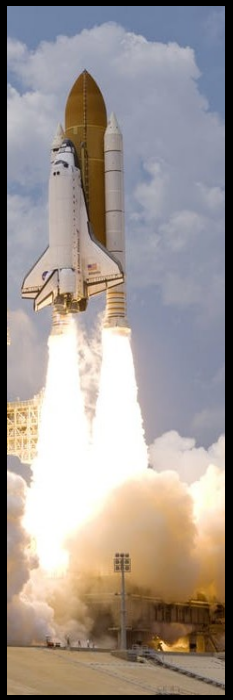
Content is all point-and click





LPT

Instructor's Web Site: Entry Point

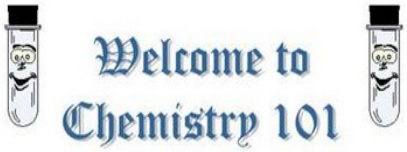


Welcome to Chemistry 101

Click on Start Here to enter the site

Click on Start Here to launch the site

LPT



The CEM 101 course is designed to facilitate your introduction to the wonderful world of chemistry.

This web site contains my intellectual property that has been removed from Blackboard.

The Course Information Index Page contains "stuff" that will answer most common questions about the mechanics and administrative issues of the class.

The Course Documents Index Page contains course materials (lecture notes, slides, flash cards, annotated outcomes, music videos, etc.) designed to facilitate your introduction into the wonderful world of chemistry.

The Lab Info Page contains a photo gallery tour of the lab, a summary of expected student behaviors (no food, drink, gum, or cell phones in the lab), a required safety agreement,s, a comment on legibility, a cover page, and photos of the lab showing where lab supplies are stored. There are also comments on the safety links and transcripts for all the DVD's in the Wonderful World of Chemistry Instructional Course.

The Lab Handouts Page contains the chemistry department lab handouts (same files as on Blackboard), as well as hand-ins, calculation summaries, and optional information related to the lab.

The Lab Briefing Slides Page contains copies of my lab briefing slides in three different (one, two, or three slides per page) formats

The Chemistry Reading List contains a collection of book references (For those seeking info outside the course material) Topics include: Chemical Magic, Chemistry Stuff, Chemistry in Every Day Living, Toxic Chemistry in the Environment, General Science and Invention, History of Chemistry, Home Experimentation, Kitchen Chemistry, Little Kid Stuff, Media Physics, and Media Science

The McGraw Hill Chemical Dictionary provides correct spelling and short explanations of commonly used chemical terms.

Remember:

The only stupid question is the one that goes unanswered because it is not asked.

and

The dumbest question of all is the one not asked that later appears on an exam.

Index Pages: Annotated Outcomes Course Documents Course Information Flash Cards
Lab Handouts Lab Information Lab Briefing Slides Lecture Materials
Lecture Slides Math Review

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Jump to: Top

Welcome Page

Hypertext Links to:

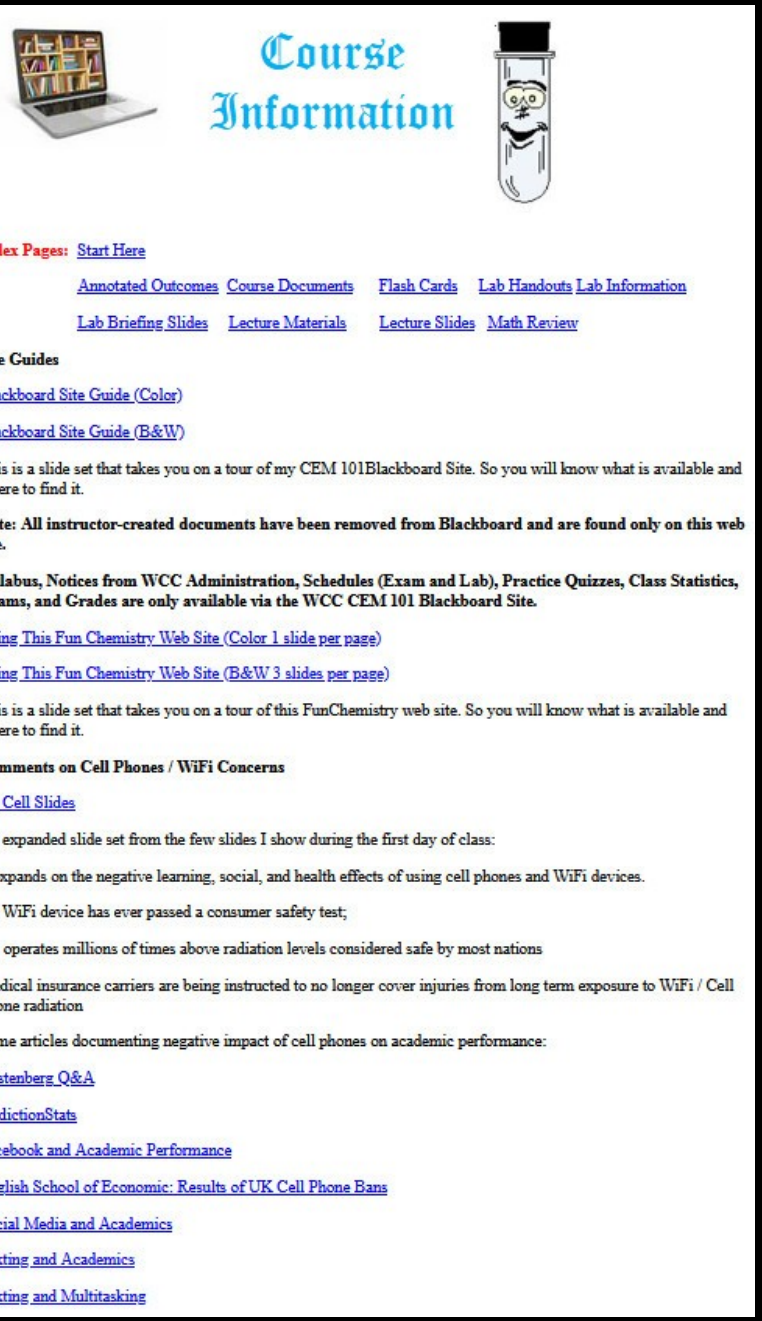
- Course Information Index
- Course Documents Index
- Lab Information Index
- Lab Handouts Index
- Lab Briefing Slides Index
- Chemical Dictionary

Legal copyright statement

Using site faster than Blackboard:

- Multiple Hypertext links
  - avoids always waiting for top of page
- No Commercial trackers

LPT



Course Information

Index Pages: Start Here

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Lab Briefing Slides Lecture Materials Lecture Slides Math Review

Site Guides

Blackboard Site Guide (Color)

Blackboard Site Guide (B&W)

This is a slide set that takes you on a tour of my CEM 101Blackboard Site. So you will know what is available and where to find it.

Note: All instructor-created documents have been removed from Blackboard and are found only on this web site.

Syllabus, Notices from WCC Administration, Schedules (Exam and Lab), Practice Quizzes, Class Statistics, Exams, and Grades are only available via the WCC CEM 101 Blackboard Site.

Using This Fun Chemistry Web Site (Color 1 slide per page)

Using This Fun Chemistry Web Site (B&W 3 slides per page)

This is a slide set that takes you on a tour of this FunChemistry web site. So you will know what is available and where to find it.

Comments on Cell Phones / WiFi Concerns

No Cell Slides

An expanded slide set from the few slides I show during the first day of class:

It expands on the negative learning, social, and health effects of using cell phones and WiFi devices.

No WiFi device has ever passed a consumer safety test;

US operates millions of times above radiation levels considered safe by most nations

Medical insurance carriers are being instructed to no longer cover injuries from long term exposure to WiFi / Cell Phone radiation

Some articles documenting negative impact of cell phones on academic performance:

Firstenberg Q&A

AddictionStats

Facebook and Academic Performance

English School of Economic: Results of UK Cell Phone Bans

Social Media and Academics

Texting and Academics

Texting and Multitasking

Course Information - 1

Hypertext Links to:

- Site Guides
  - Blackboard Site Guide
  - FunChemistry Web Site
- Comments on Cell Phone Concerns
  - No Cells Slide Set (~ 129 slides)
  - Firstenberg on health concerns
  - Cell Phone Addiction Stats
  - Facebook & Academic Performance
  - British Economic Council Study
  - Social Media & Academics
  - Texting & Academics
  - Texting & Multitasking

LPT

Course Information - 2

Course Administration / Procedures

Lecture Procedures

A set of general guidelines for expected student behavior in the lecture.

Why I Do Not Take Breaks

Comment on reasons for No Break Policy with additional comments on reasons for off-topic commentaries.

Class Topics

The class is divided into 11 units. This is a list of topics covered in each unit (Extracted from the syllabus)

Grade Percentages

Summary of what each component of the course is worth,

Shows the effect of missing individual components will have on your Blackboard Percentage Score

Table of Blackboard Percentage to Letter Grade Conversions.

Grade Posting Schedule

This explains when you can expect your grades to be posted to your Blackboard My Grades page.

Need 2 Print

There are more than a thousand pages of documents on this site. It is not necessary to print them all.

The only mandatory printing for on-campus classes is the lab handouts and lab hand-ins. All other printing is optional.

Document Formats

A comment on the format (file extensions) of documents used on this site.

Chemistry 101 Is Different

A comment on what students can expect in higher level courses and why chemistry 101 is not a model for higher level courses.

Why Thought Questions

Thought questions are available for those who arrive before class starts. This is a comment on why they are used.

Hypertext Links to:

Course Administration

- **Lecture Procedures**
- **Why I Don't Take Breaks**
- **Lecture Topics (From Syllabus)**
- **Grade Book Item Percentages**
- **Grade Posting Schedules**
- **Need 2 Print?**
- **Document Formats**
- **Why CEM 101 is different**
- **Follow Directions Fun Quiz**
- **Why Thought Questions**

LPT

Course Information - 3

No Email Response

Explains need to use CEM 101 in the subject line of any emails to the instructor

Removed

Notice that all my copyrighted material has been removed from my Blackboard Site.

Why "My Stuff" Was Removed

Comments on the reason I removed "my stuff" from Blackboard.

Why Instructor Media

Comment on instructor media used for "my stuff"

Hypertext Links to:

Course Administration (Continued)

No Email Response

Notice of Removal Material

Why Blackboard Stuff Removed

Why Instructor Media

LPT

Course Information - 4

Material NOT on exams, but furnished for enlightenment ... stuff that might be useful long after the class is over.

Follow Directions

More than 440,000 people die annually in hospitals from health care professionals not reading / following guidelines and procedures.

An additional 1.2 million near fatal injuries occur.

The litigation from all of these deaths and injuries is a significant contribution to our health care costs.

Nurse's contribute ~ 40% of these deaths / injuries.

In 1996 Carl Sagan in The Demon-Haunted World stated that US manufacturers lose ~ $ 40 billion a year from errors created by employees not following guidelines.

The inability to read, follow directions, think, and solve problems is becoming a crippling social problem.

This is the classic "Can You Follow Directions" Quiz presented here only for personal enlightenment.

Credibility

Today's social media is being populated with misinformation and conspiracy theories with a distinct anti-science / medicine tone.

Here are some sites created by U of Illinois as part of an undergraduate unit in determining web site credibility.

Sadly, the majority of college students consider these science parodies as providing reliable information.

My Standards

Slide set documenting reasons for concerns about the declining state of American education. Posted after a student posted on social media that "my standards" were based on not understanding the nature of out current society. Slides cover declining longevity, increasing health care costs, need for proper measurements, declining infrastructure, need for critical thinking and impact of artificial intelligence on the job market. These slides are based on fact, not conspiracy theory.

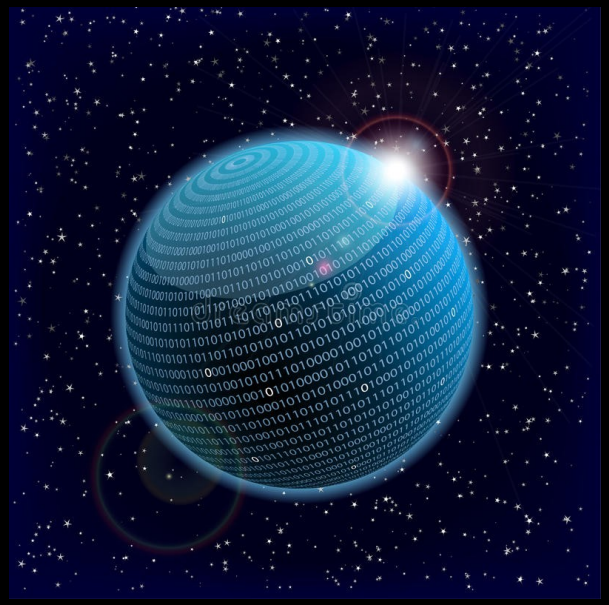
Tall Poppy Syndrome

An Australian's metaphor for American education based on a research group discussion of American education that was prompted by Carl Sagan's best selling book, The Demon-Haunted World.

Hypertext Links to:

Stuff For Enlightenment

- Follow Directions Quiz
- Internet Credibility Sites
- My Standards
- Tall Poppy Syndrome



LPT

Course Information - 5

Information About Your Instructor

Instructor's Background

From Blackboard Contacts Tab

My Office

Pictures of my office hopefully demonstrating knowledge of computer technology. Posted after a student stated in social media that I used only circa 2000 technology.

Why I Wear a Mask

Comments on wearing a mask on campus

Recommendations

My requirements for writing letters of recommendations

Index Pages: Start Here

Annotated Outcomes | Course Documents | Flash Cards | Lab Handouts | Lab Information

Lab Briefing Slides | Lecture Materials | Lecture Slides | Math Review

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Jump to: Top

Hypertext Links to:

Instructor Information

- **Background / Credentials**
- **Home Office Photos**
- **Why I Wear A Mask**
- **Letters of Recommendation**

Legal Stuff

LPT

Course Documents

Index Pages: Start Here

Annotated Outcomes Course Information Flash Cards Lab Handouts

Lab Information Lab Briefing Slides Lecture Materials

Lecture Slides Math Review

Videos:

FunOfChemistry High school students play with chemistry projects (4:53)

DoMasksWork Experimental demonstration on effectiveness of masks in reducing respiratory particle distribution (5:08)

SantaClausStatistics Statistician examines Santa Claus distribution of presents (3:47)

StoryOfStuff Comment on Recycling / Sustainability/ Environmental Toxics (21:16)

The course uses the Adode flv (fast inernet streamijng) video format. Use the above videos to check your ability to render the videos used in lecture and lab. If you cannot render the videos, try the free open source vlan media player at https://www.videolan.org/vlc/ This extremly well respected and popular media player is available for download and installation on most known devices and platforms.

Math Review

This is the index for a set of brief overviews of math concepts used in chemistry 101.
This is material typically associated with grade / middle school arithmetic.
This material will not be discussed in class.

Lecture Materials

This is a collection of materials organized by Unit. Each unit contains student outcomes (expected to know), lecture notes (synched to lecture slides), and optional practice quizzes (and answers). Units 6-10 have practice insert exams. Some units have additional optional material such as music videos and essays on related topics.

Lecture Slides

This is a collection of my lecture slides listed in order of presentation. They are presented in three different (one, two, or three slides per page) full color and one blackandwhite (three slides per page) formats; the individual slides are identical, but different formats allow multiple printing options.

Annotated Outcomes

These are the chemistry department unit outcomes which have been annotated with lecture material to serve as a study aid.

Course Documents - 1

Hypertext Links to:

- Math Review
- Lecture Materials
- Lecture Slides
- Annotated Outcomes

LPT

Flash Cards

These are two sets of flash cards to assist in learning stuff that needs to be memorized.

Chemistry Reading List

A collection of book references (For those seeking info outside the course material) Topics include: Chemical Magic, Chemistry Stuff, Chemistry in Every Day Living, Toxic Chemistry in the Environment, General Science and Invention, History of Chemistry, Home Experimentation, Kitchen Chemistry, Little Kid Stuff, Media Physics, and Media Science

Introductory Chemistry

This an open source introductory chemistry text in pdf format.
It is not required for class; it is provided as an additional study resource.

Index Pages: Start Here

Annotated Outcomes | Course Information | Flash Cards | Lab Handouts

Lab Information | Lab Briefing Slides | Lecture Materials

Lecture Slides | Math Review

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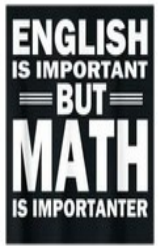
Jump to: Top

Course Documents - 2

Hypertext Links to:

- Flash Cards
- Chemistry Reading List
- Introductory Chemistry text

LPT



Math Review

Math Review- 1

Hypertext Links to:

- Math Study Books
- Web Tutorials
- TI-30 Calculator Manual
- Casio 300 Calculator Manual

Index Pages: Start Here

Annotated Outcomes | Course Documents | Course Information | Flash Cards | Lab Handouts | Lab Information | Lab Briefing Slides | Lecture Materials | Lecture Slides

Chemistry 101 does not use math/arithmetic techniques beyond grade / middle school levels.

However, because of the large variety of math level skills / fears that are present in the chemistry 101 student population, a summary of basic math skills is presented only for those who feel the need to refresh these elementary math skills.

The following are intended only as a brief overview of a specific math skill.

Since course pre-requisites assume these are known skills, no class time will be spent on these topics.

Math References

Books offering well received reviews on middle school math.

Web-Based Pre-Algebra Tutorials

Web sites with on-line tutorials

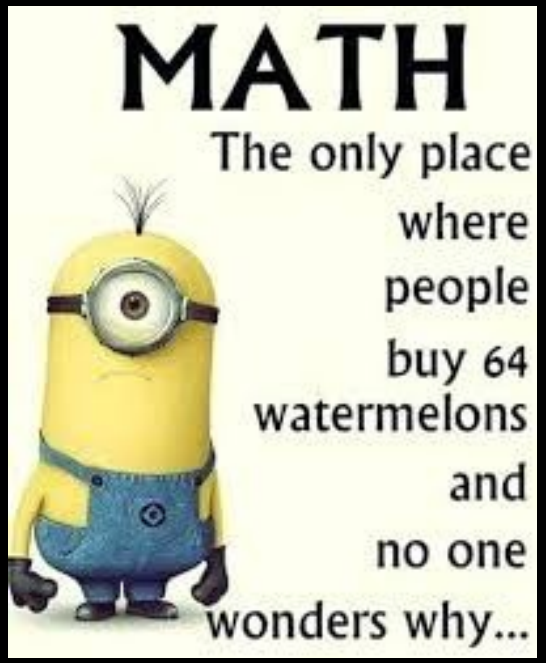
TI-30 Manual

The Texas Instruments TI-30 is considered a reasonable model for an algebraic chip based hand held calculator.

This is not a universal manual as each manufacturer may have their own chip-specific operations and key pads.

Casio 300 ES Plus Manual

The Casio 300ES Plus is sold in the WCC bookstore. It has more powerful (has more keypad options) than the typical entry-level scientific calculator



LPT

Exponent Operations

Review of exponentials, scientific notation, and decimal-exponential conversions.

Rounding

Review of significant figures and the rounding rules for addition/subtraction and multiplication/division.

Logarithms

Not used in chemistry 101, but used in chemistry 105 and 111.

Rearranging Equations

Review of basic algebraic procedures for solving for one variable; cross-multiplication.

Fractions

Review of the arithmetic operations involving fractions

Decimals

Review of arithmetic operations involving decimals.

Fraction Conversions

Review of arithmetic operations used to convert decimal representation to fractions and visa versa.

Percent

Review of arithmetic operations involving percentages

Graphing

Review of simple 2-dimensional (x,y) graphing techniques

Jump to: Top

Index Pages: Start Here

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Lecture Slides

Jump to: Top

Math Review- 2

Hypertext Links to:

- Exponent Operations
- Rounding
- Logarithms
- Rearranging Equations
- Fractions
- Decimals
- Fraction Conversions
- Percent
- Graphing

LPT

Lecture Materials-1

Lecture Materials

Index Pages: Start Here

Annotated Outcomes | Course Documents | Course Information | Flash Cards

Lab Handouts | Lab Information | Lab Briefing Slides | Lecture Slides | Math Review

This is a collection of materials organized by Unit.
Each unit contains student outcomes (expected to know for the unit exam), lecture notes (synched to lecture slides), and optional practice quizzes (and answers). Some units have additional optional material such as charts, music videos and essays on related topics.

Jump to: Unit 0 First Day | Unit 01 Matter | Unit 02 Exponents | Unit 03 Rounding | Unit 04 Atoms

Unit 05 Nomenclature | Unit 06 Empirical Formula | Unit 07 Stoichiometry

Unit 08 Gases | Unit 09 Solutions | Unit 10 Acids | Unit 11 Atomic Theory

Unit 0 – First Day Administrative Stuff and Material Needed to Memorize

First Day Lecture Notes

Boost Grades Lecture Notes

Common Conversions (Memorize by Unit 1 Exam)

Common Elements (Memorize by Unit 4 Exam)

PolyAtomics (Memorize by Unit 5 Exam)

CoverPages Cover pages and Table of Contents for Those Printing Lecture Material

A Day Without Chemistry American Chemical Society Promo on the Wonderfulness of Chemistry (1:50)

Diet Coke Mentos Fun video on creating Diet Coke Fountains with Methos tablets (2:57)

Unit 01 – Matter and Energy / Measurements

Outcomes Required knowledge for Unit Test 1

Nature of Science Lecture Notes

Matter and Energy Lecture Notes

Matter Classification Scheme Image from lecture: flow chart for classifying matter

Measurements Lecture Notes

Extra Practice Problems For those wanting extra practice ... not collected or graded

Answers For Extra Practice

Units 0: First Day

Hypertext links:

- Lecture Notes synched to slides
- Stuff to memorize
- ACS Chemistry Promo
- Diet Coke-Menthos Experiment

Unit 1: Matter /Energy

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Matter classification scheme
- Extra practice quiz (and answers)

LPT

Lecture Materials-2

Unit 02 – Exponents and Scientific Notation / Using Scientific Calculators

Outcomes	Required knowledge for Unit Test 2
Exponents Lecture Notes	
Calculators Lecture Notes	
Extra Practice Problems	For those wanting extra practice ... not collected or graded
Answers For Extra Practice	
Number Symbols	Comment on the origin of our modern 1-9 symbols for counting numbers
Fantastic Trip	A PowerPoint presentation : trip thru the universe with distances changing by powers of ten (~ 10:30)

Unit 03 – Significant Figures and Rounding / Density

Outcomes	Required knowledge for Unit Test 3
Sig Figs and Rounding Lecture Notes	
Density Lecture Notes	
Additional Practice on determining the number of significant figures (answers provided)	
Add and Subtract Rules	
Multiply and Divide Rules	
Determining Number Of Sig Figs	
Where The Heck To Round	Music Video on Significant Figures and Rounding (2:53)
SigFig Gig	Music Video on Significant Figures (2:26)
Extra Practice Problems	For those wanting extra practice ... not collected or graded
Answers For Extra Practice	

Unit 2: Exponents and Calculators

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Extra practice quiz (and answers)
- Comments on Numbers
- Fantastic journey slide show

Unit 3: Rounding & Sig Figs

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Extra practice quiz (and answers)
- Music videos on sig figs & rounding

LPT

Lecture Materials-3

Unit 04 – Atoms and The Periodic Table

Outcomes	Required knowledge for Unit Test 4
Atoms Lecture Notes	
Periodic Table Lecture Notes	
CEM 101 Periodic Table	This is the Periodic Table furnished to you at the testing center
PeriodicTableColor	This is a simple color chart of all 118 elements
Blank Periodic Table	Empty Periodic Table for those wishing an empty copy for practice
Elements (by Name)	List of the elements listed in alphabetical order
A Boy and His Atom	Video visualizing manipulation of atoms (1:33)
Elemental Funkiness	Music Video on the Periodic Table (3:66)
All The Elements	Video based on the Photographic Periodic Table (8:00)
Periodic Table Crossword	Optional: Crossword on the elements (From WCC Nature of Science Class)
Extra Practice Problems	For those wanting extra practice ... not collected or graded
Answers For Extra Practice	
Chemistry Is A Pun	Optional: Fill in the blank with an element name and form a pun
Windows Periodic Table	This is an installer for the periodic table software used in class (not tested above Windows 7)

Tom Lehrer was a Harvard professor who was well known for his abundant political satire songs and musical parodies during the 1950's. One of his most famous songs was nothing more than reciting the elements of the periodic table. Here are files (you are not required to sing in this class) related to his famous song.

Elements Song	Audio file (mp3) of Tom Lehrer singing his Element Song
Elements Song Lyrics	
Elements Song Animation	(1:33)
A Different Periodic Table Song	(2:44)

Unit 05 – Formula Nomenclature

Outcomes	Required knowledge for Unit Test 5
Formula Nomenclature Lecture Notes	
Naming Flow Chart	Image from lecture: flow chart for naming substances in chemistry 101
Formula Calculations Lecture Notes	
Formula Review Lecture Notes	
Happy Mole Day To You	Music video celebrating Mole Day (2:16)
Extra Practice Problems	For those wanting extra practice ... not collected or graded
Answers For Extra Practice	
Extra Formula Table	More chemical nomenclature exercises
Answers For Extra Formula Table	
Extra Credit Naming Exercise	This exercise is based on the reactions lab (which is the basis of the reactions used in the Inserts)

This exercise will only be accepted (on this form) for credit during the in-lecture Practice Quiz for Unit 5.

Unit 4: Atoms & Periodic Table

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Extra practice quiz (and Answers)
- Videos on atomic related topics
- Words and music to the Element Song

Unit 5: Nomenclature

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Naming Flow chart
- Extra practice quiz (and Answers)
- Extra Credit Naming Exercise

LPT

Lecture Materials-4

Unit 06 – Empirical Formulas and Balancing Reactions

Outcomes	Required knowledge for Unit Test 6	
More Moles Lecture Notes		
Empirical Formulas Lecture Notes		
Balancing Reactions Lecture Notes		
Types of Chemical Reactions Notes		
Don't Break The Law	Music video on the law of conservation of matter	(3:21)
So You Want To Make A Product	Music video on chemical reactions	(3:39)
Chemical Reactions	Video on chemical reaction types	(5:12)
Extra Practice Problems	For those wanting extra practice ... not collected or graded	
Answers For Extra Practice		
Extra Balancing Practice	For those wanting extra practice ... not collected or graded	
Answers For Extra Balancing Practice		
Practice Insert	Sample Insert Exam	
Answers To Practice Insert		

Unit 07 – Stoichiometry and Yields

Outcomes	Required knowledge for Unit Test 7	
Stoichiometry Lecture Notes		
Yields Lecture Notes		
Extra Practice Problems	For those wanting extra practice ... not collected or graded	
Answers For Extra Practice		
Practice Insert		
Answers To Practice Insert		

Unit 08 – Gases

Outcomes	Required knowledge for Unit Test 8	
Gases Lecture Notes		
Gas Laws Notes		
Extra Practice Problems	For those wanting extra practice ... not collected or graded	
Answers For Extra Practice		
Practice Insert		
Answers To Practice Insert		
Liquid N2 and Lots of Ping Pong Balls	Video demonstrating power of expanding gases	(4:36)

Unit 6: More Moles

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Extra practice quiz (and answers)
- Videos on reaction type
- Practice Insert (and answers)

Unit 7: Stoichiometry

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Extra practice quiz (and answers)
- Practice Insert (and answers)

Unit 8: Gases

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Extra practice quiz (and answers)
- Practice Insert (and answers)
- Video on liquid nitrogen expansion

LPT

Lecture Materials-5

Unit 09 – Solutions

Outcomes — Required knowledge for Unit Test 9

Solutions Lecture Notes

Solution Concentrations Lecture Notes

Titrations Lecture Notes

For Those About To Dissolve — Music video on the dissolving process (2:20)

Bromthymol Blues — Music video on titrations (2:41)

Extra Practice Problems — For those wanting extra practice ... not collected or graded

Answers For Extra Practice

Practice Insert

Answers To Practice Insert

Unit 10 – Acids and Bases

Outcomes — Required knowledge for Unit Test 10

Titration Calculations Lecture Notes

Acids and Bases Lecture Notes

Extra Practice Problems — For those wanting extra practice ... not collected or graded

Answers For Extra Practice

Practice Insert

Answers To Practice Insert

Unit 11 – Atomic Theory

Outcomes — Required knowledge for Unit Test 11

Atomic Theory Lecture Notes

Electronic Configuration Lecture Notes

Lewis Dot Lecture Notes

Bonding Lecture Notes

Electronic Configuration Worksheet

Electronegativity Periodic Table — Chart of Pauling Electronegativity, used for bond type calculations

What The Hack Is Light — Music video about the nature of light (3:29)

Atomos — Music video on atomic theory (4:41)

I Heart Electron Config — Music video on electrons (3:24)

What Kinds Of Bonds Are These — Music video on chemical bonds (3:29)

Dog Teaching Chemical Bonds — Video using dogs to illustrate chemical bonding (1:05)

Extra Practice Problems — For those wanting extra practice ... not collected or graded

Answers For Extra Practice

Jump to: Top

Unit 0 First Day | Unit 01 Matter | Unit 02 Exponents | Unit 03 Rounding | Unit 04 Atoms | Unit 05 Formula Nomenclature | Unit 06 Empirical Formula | Unit 07 Stoichiometry | Unit 08 Gases | Unit 09 Solutions | Unit 10 Acids | Unit 11 Atomic Theory

Index Pages: Start Here | Annotated Outcomes | Course Documents | Course Information | Flash Cards | Lab Handouts | Lab Information | Lab Briefing Slides | Lecture Slides | Math Review

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Jump to: Top

Unit 9: Solutions

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Extra practice quiz (and answers)
- Video on titration
- Video on dissolving substances
- Practice Insert (and answers)

Unit 10: Acids and Bases

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Extra practice quiz (and answers)
- Practice Insert (and answers)

Unit 11: Atomic Theory (Unit 4 on steroids)

Hypertext links:

- Expected Learning Outcomes
- Notes synched to lecture slides
- Extra practice quiz (and answers)
- Practice Insert (and answers)
- Music videos on atomic topics

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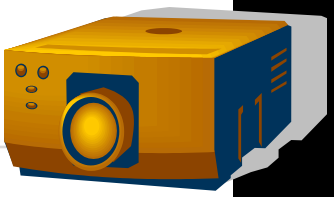
Course Documents – Slides



Lecture Slides (Color_1 per page)

By topic, in order of presentation

Lecture Slides (Color_2 per page)

By topic, in order of presentation

Lecture Slides (Color_3 per Page)

By topic, in order of presentation
Outline Format to facilitate taking in-class notes

Lecture Slides (Black-and-White 3 Slides per Page)

By topic, in order of presentation
Outline Format to facilitate taking in-class notes

Color Lecture Slides:

1 slide per page

2 slides per page

3 slides per page

Although perceived colors will vary,
Contrast is viable for color blindness:

Deuternapia

Protanopia

Tritanopia

As checked by Color Oracle Software

Slides used in lecture
Presented in order of presentation

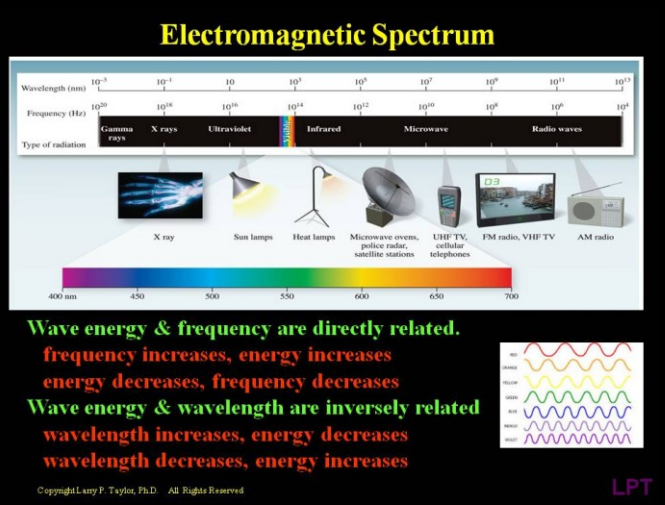
B&W Lecture Slides:

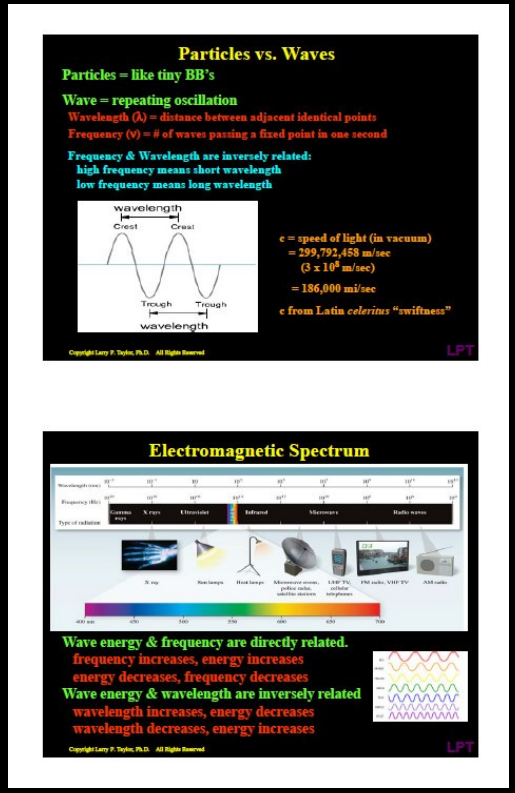
3 slides per page

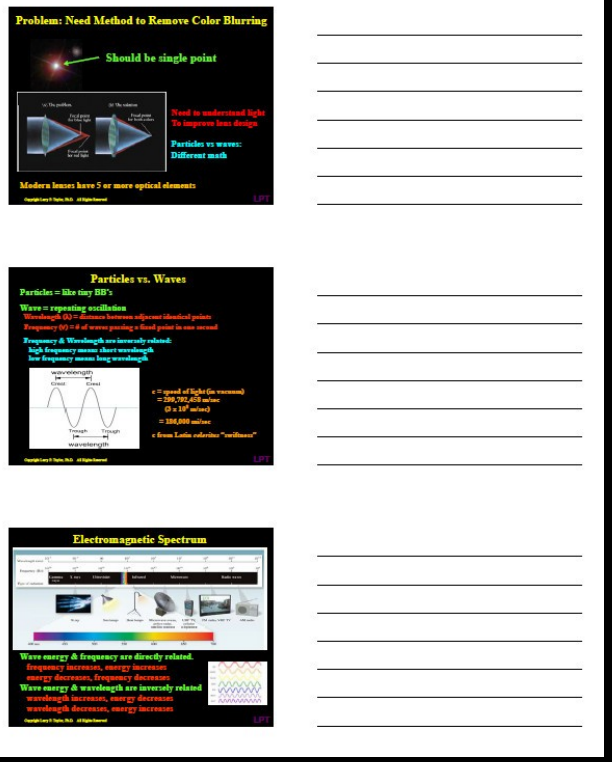
Pure black and white

LPT

Handout Slide Formats: Color







One, Two or Three Slides per page for different printing needs

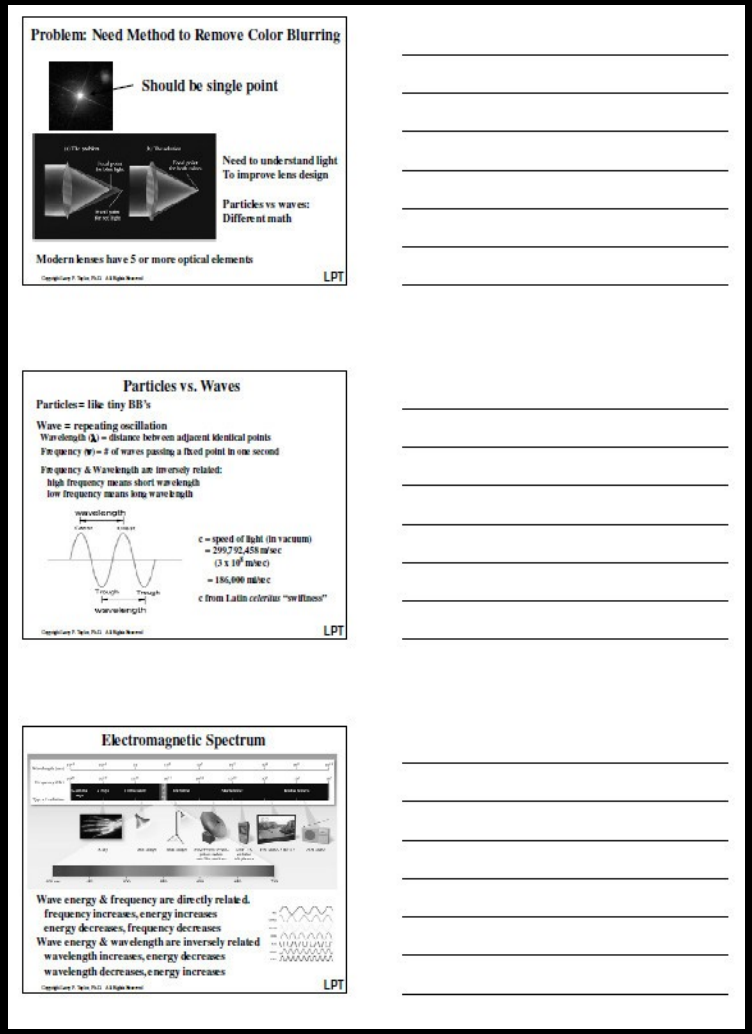
Dark Background:

Best for human perception / learning

Minimizes eye fatigue

LPT

Handout Slide Format: Black & White



Primarily for taking notes
3 Slides per page

Color reversal:
minimizes black ink use
lower printing costs

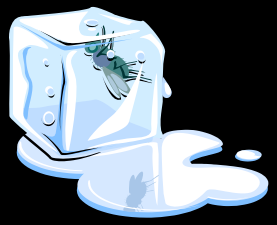
But,
Microsoft Clip Art:
Cannot be exported in B&W
Will print in color
Unless
Printer is only black ink

Learning Outcomes (Annotated)

Chemistry Department Unit Educational Objectives
(Stuff on the test)
Annotated with lecture slide material illustrating the specific objective:

Define the following relating to changes and properties:

Physical Property
- Observed without forming new substance
- Described by senses
  - Color, shape, odor, taste
- Measurable
  - mp, bp, density



Physical Change
- New form of same substance
- No new substance (chemical entity) formed

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Flash Cards - Either As Card Template or Slides

Flash Cards (PDF)

Common Conversions
Conversions (6.035 Kb)
Common Metric/English Unit Conversions

Metric Prefixes
MetricPrefix (7.381 Kb)
Prefixes used in the metric system to indicate powers of ten times the base unit

Common Elements
Elements (696.236 Kb)

Family-Charge
FamilyCharge (167.578 Kb)
Chemical Families and their common Ionic Charge

Cations
Cations (10.801 Kb)
Names and Formulas of the common mono-atomic Cations

Anions
Anions (5.886 Kb)
Names and Formulas of the common mono-atomic Anions

Polyatomic Ions
Polyatomics (11.146 Kb)
Names and Formulas of the common polyatomic Ions

Acids
Acids (7.225 Kb)
Names and Formulas of the common Acids

Greek Prefixes
GreekPrefix (6.35 Kb)
Greek prefixes (1-10) used in naming compounds

Hydrogen	H

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Chemistry Reading List

This is neither a comprehensive nor definitive list … it is merely a partial listing of books from my personal library. It is offered for those students who have asked for **additional non text-book, non-required reading**.

Chemical Magic

Bert Easley, **Doing Magic for Youngsters**, D. Robbins, Brooklyn, NY. 1997, 122 pages.
Leonard Ford, **Chemical Magic**, Dover Publications, New York, NY. 1993, 109 pages.
John Lippy & Edward Palder, **Modern Chemical Magic**, No listed Publisher or copyright date, 164 pages.

Chemistry Stuff

Kyle Buchanan & Dean Roller, **Memorize the Periodic Table**, Memory Worldwide, 2013, 94 pages.
Cathy Cobb & Monty Fetterolf, **The Joy of Chemistry**, Prometheus Books, Amherst, NY. 2005, 233 pages.
Theodore Gray, **Elements**, Black Dog & Leventhal, New York, NY. 2009, 240 pages.
Theodore Gray, **Molecules**, Black Dog & Leventhal, New York, NY. 2014, 240 pages.
Theodore Gray, **Reactions**, Black Dog & Leventhal, New York, NY. 2017, 216 pages.
Albert Swerta, **A Guide to the Elements**, Oxford University Press, New York, NY, 2012, 256 pages.
Benjamin Wiker, **The Mystery of the Periodic Table**, Bethlehem Books, San Francisco, CA. 2003, 163 pages.

Chemistry in Every Day Living

Dan Agin, **Junk Science**, Thomas Dunne, New York, NY. 2006, 313 pages.
John Emsley, **Molecules at an Exhibition**, Oxford University Press, New York, NY. 1998, 280 pages.
John Emsley, **Vanity, Vitality, and Virility**, Oxford University Press, New York, NY. 2004, 259 pages.
Simon Field, **Why There's Antifreeze in your Toothpaste**, Chicago Review, Chicago, IL. 2008, 263 pages.
Ben Goldacre, **Bad Science**, Faber & Faber, New York, NY. 2010, 288 pages.
Nick Lane, **Oxygen: The Molecule that made the World**, Oxford University Press, New York, NY. 2002, 174 pages.
Joe Schwarcz, **Dr. Joe & What You Don't Know**, ECW Press, Toronto, Canada, 2003, 241 pages.
Joe Schwarcz, **That's the Way the Cookie Crumbles**, ECW Press, Toronto, Canada, 2002, 273 pages.
Carl Snyder, **The Extraordinary Chemistry of Ordinary Things**, John Wiley, New York, NY. 117 pages.

Toxic Chemistry of The Environment

Nena Baker, **The Body Toxic**, North Point Press, New York, NY. 277 pages.
Deborah Blum, **The Poison Squad**, Penguin Press, New Pork NY. 2018, 330 pages,
Gail Jarrow, **The Poison Eaters**, Calkins Creek, New York, NY. 2019, 157 pages.
Bruce Lourie & Rick Smith, **ToxIN ToxOUT**, Random House, New York, NY. 2013, 290 pages.
Rick Smith & Bruce Lourie, **Slow Death by Rubber Duck**, Couterpoint, New York, NY, 2008, 328 pages.
George Zaidan, **Ingredients: the strange chemistry of what we put in us and on us**, Dutton, NY. 2020, 299 pages.

General Science & Invention

Tom Bethell, **The Politically Incorrect Guide to Science**, Regnery Publications, 2005, 270 pages.
Ira Flatow, **They All Laughed**, Harper, New York, NY. 1993, 240 pages.
Allyn Freeman & Bob Golden, **Why Didn't I Think of That?** John Wiley, New York, NY. 1997, 235 pages.
Walter Gratzer, **Eurekas and Euphorias**, Oxford University Press, New York, NY. 2002, 355 pages.
Paul Halpern, **What's Science Ever Done For Us?** John Wiley, New York, NY. 2007, 262 pages.
Kate Kelly, **That's Not in my Science Book**, Taylor Trade, New York, NY. 2006, 226 pages.
Karl Kruszelnicki, **Great Myth-Conceptions**, Andrew McMeel Publishing, Kansas City, MO. 2006, 209 pages.
Bobby Mercer, **How Do You Light A Fart?** Adams Media, Avon, MA. 2009, 221 pages.
Royston Roberts, **Serendipity: Accidental Discoveries in Science**, John Wiley, New York, NY. 1989, 270 pages.
Author Wiggins, **The Joy of Physics**, Prometheus Books, Amherst, NY. 2007, 390 pages.
Daniel Wilson & Anna Long, **The Mad Scientist Hall of Fame**, Citadel Press, New York, NY. 2008, 287 pages.
Robert Wolke, **What Einstein Told His Barber**, Dell Trade, 2000, 269 pages.
Keith & Kent Zimmerman, **Mythbusters**, Simon Spotlight, New York, NY. 2005, 205 pages.

Emphasis on History

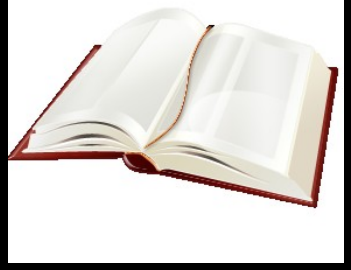
Hugh Aldersey-Williams, **Periodic Tales: A Cultural History of the Elements**, Harper-Collins, New York, NY. 2011, 428 pages.
Brian Clegg, **Armageddon Science**, St Martin's, New York, NY, 2010, 294 pages.
Robert Jaffè, **Crucibles: The Story of Chemistry**, Dover Publications, New York, NY. 1978, 368 pages.
Rick Beyer, **The Greatest Science Stories Never Told**, Harper, New York, NY. 2009, 215 pages.

Reading List

Book list from my personal library:

- Chemical Magic
- Chemistry Stuff
- Chemistry of Everyday Living
- Toxic Chemicals in Environment
- General Science & Invention
- Emphasis on History
- Home Experimentation
- Kitchen Chemistry
- Little Kid Stuff
- Media Physics
- Media Science

Not required Reading:
Info on commonly asked-for topics



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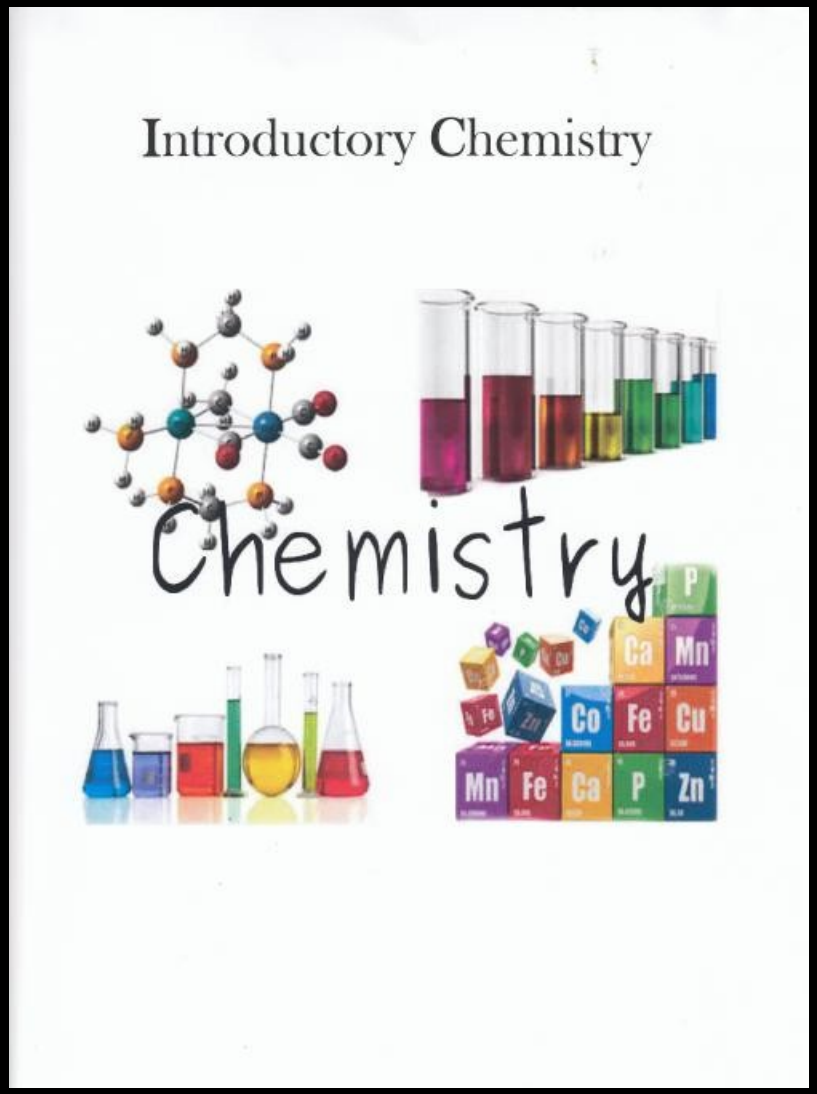
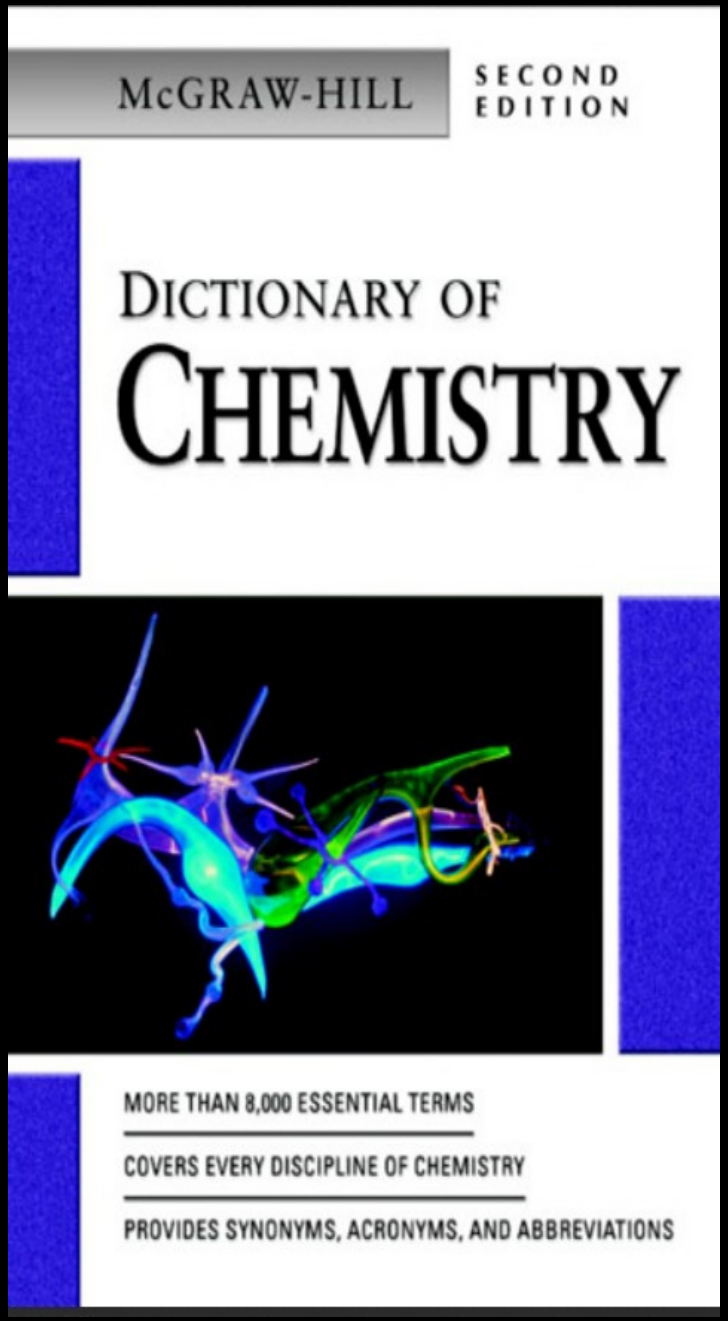
Introductory Chemical Text



Hypertext Link to:
Introductory Chemistry
By
Mike Ball

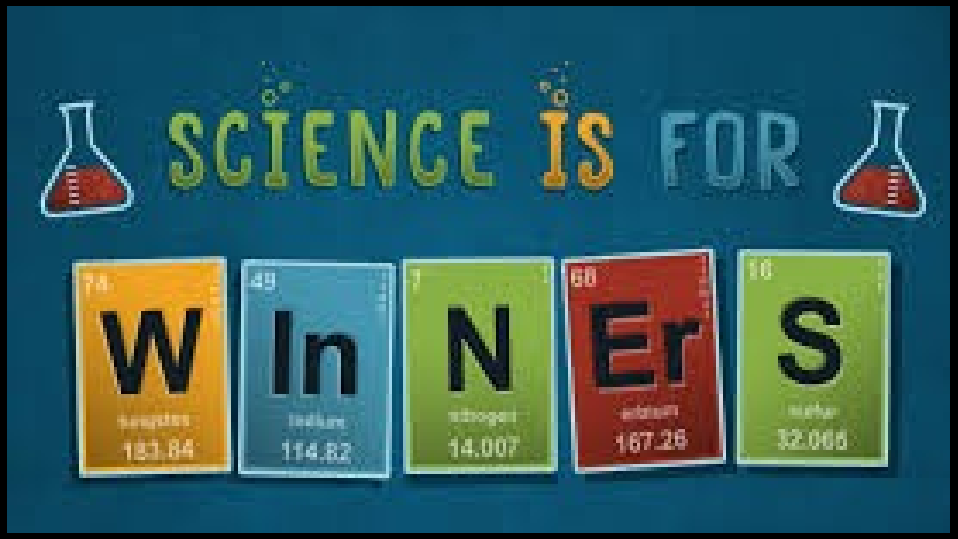
Not required for class
Optional information source

LPT



Chemical Dictionary

Hypertext Link to:
Open Source Chemical Dictionary



Not required for class
Optional information source

LPT

Lab Information-1

Laboratory Information

Index Pages: Start Here

Annotated Outcomes | Course Documents | Course Information | Flash Cards

Lab Handouts | Lab Briefing Slides | Lecture Materials

Lecture Slides | Math Review

Jump to: Administrative Stuff | Safety Video Links | DVD Transcripts for World of Chemistry

Administrative Materials

Lab Tour Slides

Visual tour of LA 331 (the chemistry 101 lab)

Lab Tour Slides B&W

Visual tour of LA 331 (the chemistry 101 lab) B&W, 3 slides per page

Lab Procedures

Expected student behavior

Protect the Legs

Comment on why you protect the legs

Lab Safety Agreement

Risk Management requires you to copy this into page 1 of your lab notebook

Legibility

Comment on the importance of legibility in materials turned in for grading

Lab Cover Page

Optional cover page for the lab handouts

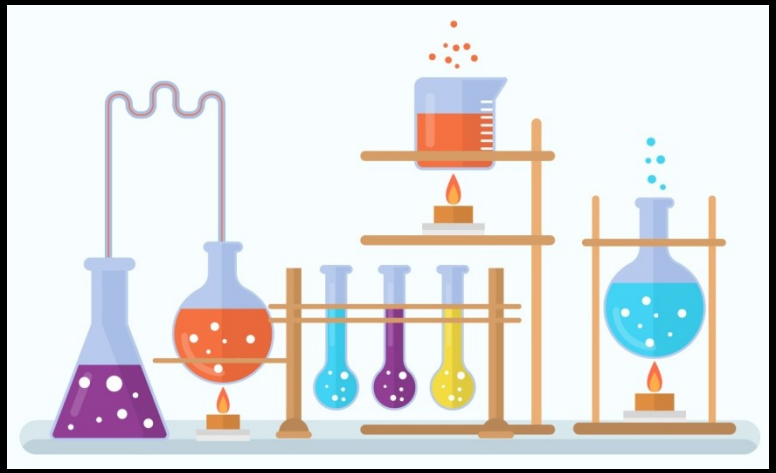
For those who want to print the labs

Where Lab Supplies are Located

Summary of where to find lab materials and supplies

Hypertext Links to:

- Lab Tour
- Lab Procedures
- Protect the Legs
- Lab Safety Agreement
- Legibility Comment
- Lab Cover Page
- Where Supplies Are Found



LPT

Lab Information-2

DVD Transcripts

Several labs have associated DVD presentations. These presentations are not-captioned for the hearing-impaired.

These are the transcripts furnished by the publisher for the entire set of introductory chemistry videos used in chemistry 101.

This series was done by Maryland Public Television

IMDB Desription of the Series

Index

Online streaming from Annenberg was discontinued in June, 2019.

Videos of The World of Chemistry Series are available from Trakt TV

Programs

A list of the four labs that show World of Chemistry programs and their corresponding transcript

The Transcripts for the programs in the World of Chemistry Series:

World of Chemistry 01-03

World of Chemistry 04-06

World of Chemistry 07-09

World of Chemistry 10-12

World of Chemistry 13-14

World of Chemistry 15

World of Chemistry 16-18

World of Chemistry 19-21

World of Chemistry 22-24

World of Chemistry 25-26

Jump to: Top

Administrative Stuff Safety Video Links DVD Transcripts for World of Chemistry

Index Pages: Start Here

Annotated Outcomes Course Documents Course Information Flash Cards

Lab Handouts Lab Briefing Slides Lecture Materials

Lecture Slides Math Review

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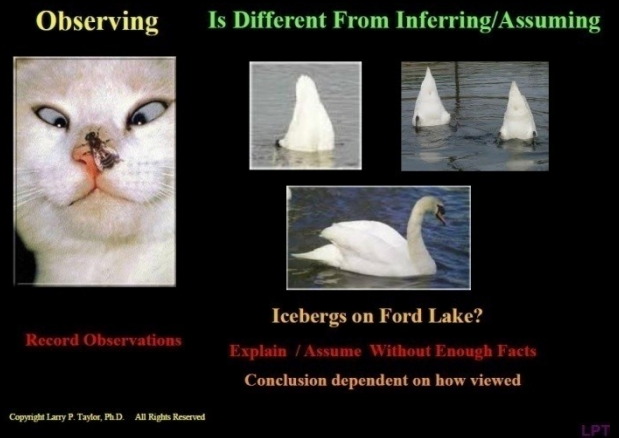
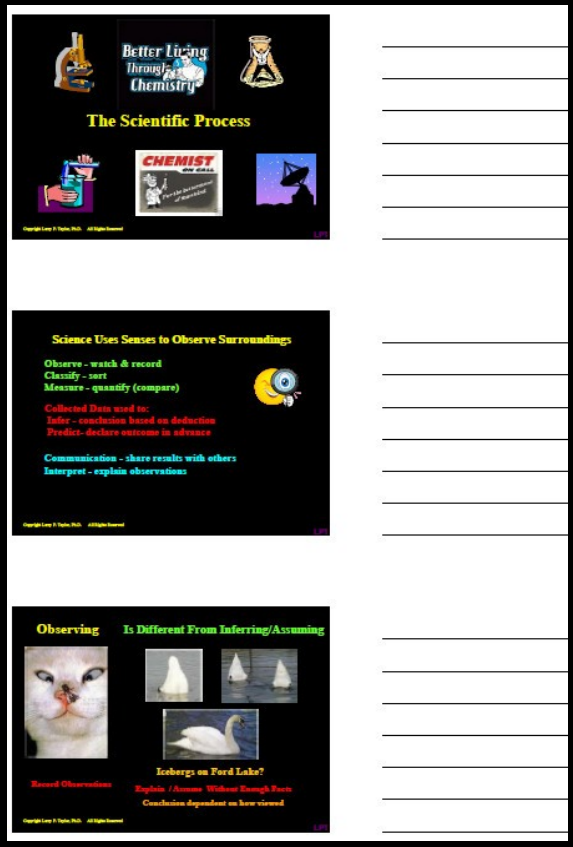
Jump to: Top

Hypertext Links to:
ACS Safety Video
Transcripts for
Anneberg World Of Chemistry

LPT

Lab Briefing: Color Slide Formats





One, Two or Three Slides per page for different printing needs

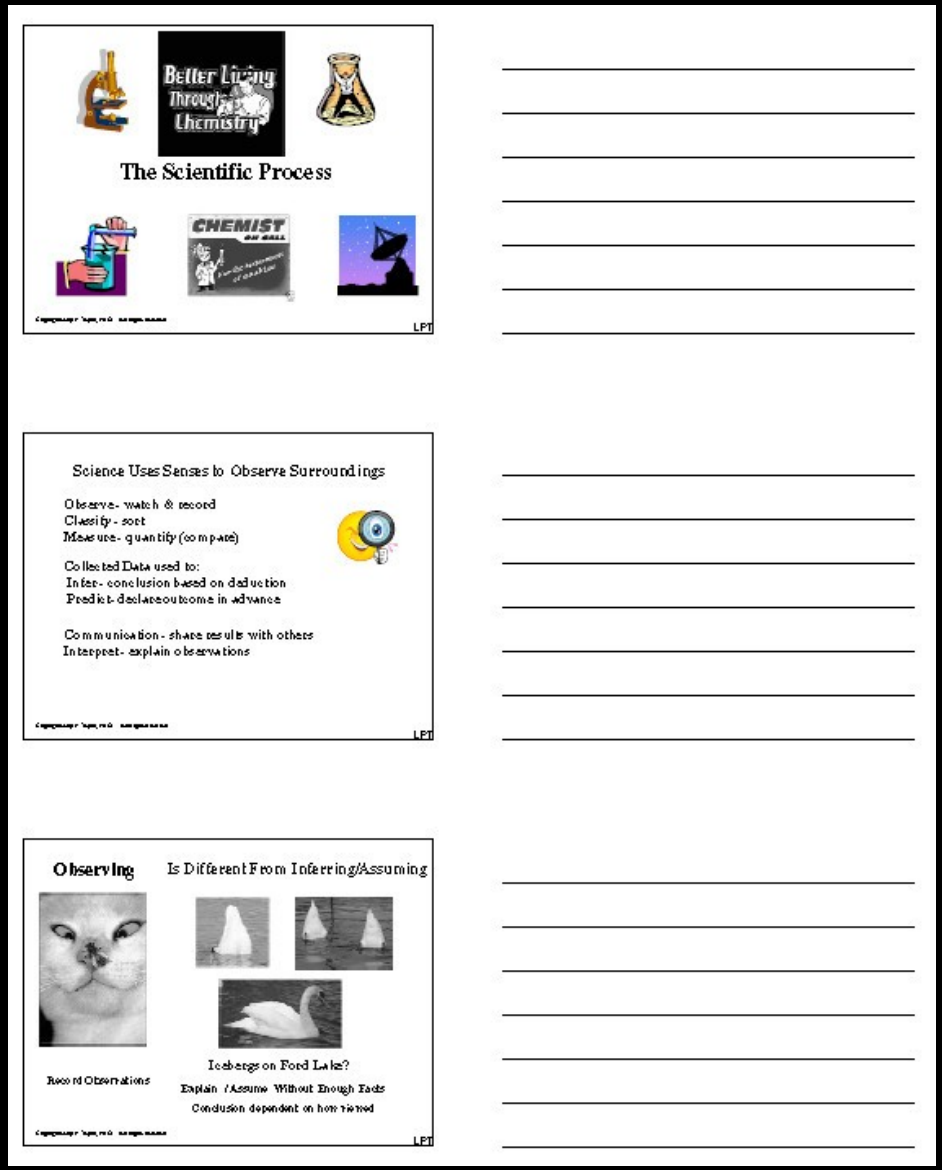
Dark Background:

Best for human perception / learning

Minimizes eye fatigue

LPT

Lab Briefing: B&W Slide Format



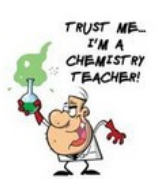
Primarily for taking notes
3 Slides per page

Color reversal:
minimizes black ink use
lower printing costs

But,
Microsoft Clip Art:
Cannot be exported in B&W
Will print in color
Unless
Printer uses only black ink

LPT

Lab Briefing: Index 1



Lab Briefing Slides

Index Pages: Start Here

Annotated Outcomes | Course Documents | Course Information | Flash Cards

Lab Handouts | Lab Information | Lecture Materials | Lecture Slides | Math Review

My lab briefing slides are presented in 3 different (one, two, or three slides per page) color formats and one Black-and-white (3 slides per page) format.

The slides are identical in all formats; however, the number of slides per page is varied to suit different printing preferences.

The slides in each category are listed by topic in order of presentation.

Jump to: Color_1 Slide_Per_Page | Color_2 Slides Per_Page | Color_3 Slides_Per_Page | Black-and-White 3 Slides Per Page

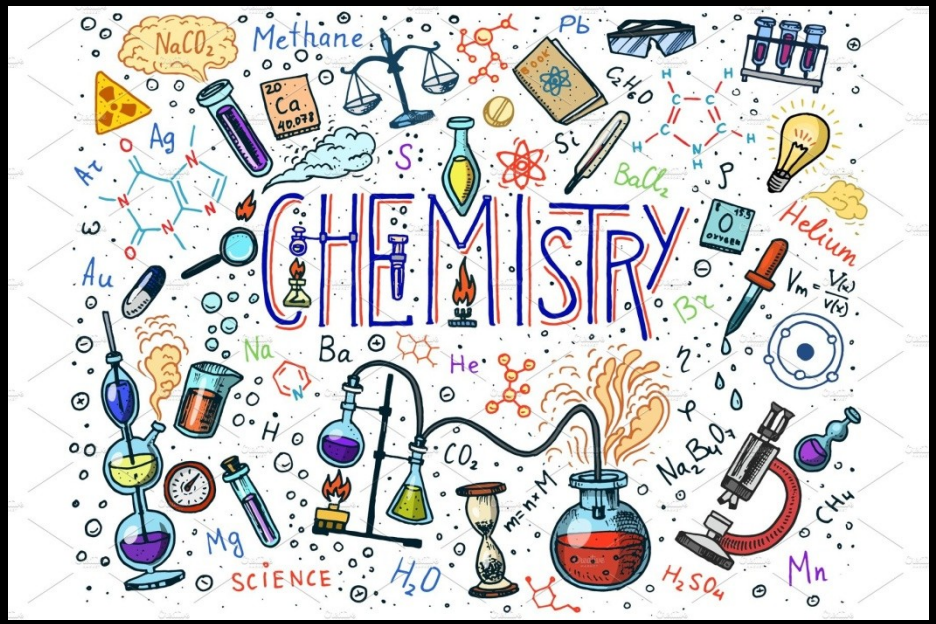
Color, 1 slide per page

Lab01 Science Processes	Lab09 Reactions
Lab02 Separation	Lab10 Stoichiometry
Lab03 Chromatography	Lab11 Gases
Lab04 Density	Lab12 Solutions
Lab05 Properties	Lab13 Antacids
Lab06 Sugar In Soda	Lab14 Titration
Lab07 Hydrates	Lab15 Molecular Models
Lab08 Empirical Formula	

Color, 2 slides per page

Lab01 Science Processes	Lab09 Reactions
Lab02 Separation	Lab10 Stoichiometry
Lab03 Chromatography	Lab11 Gases
Lab04 Density	Lab12 Solutions
Lab05 Properties	Lab13 Antacids
Lab06 Sugar In Soda	Lab14 Titration
Lab07 Hydrates	Lab15 Molecular Models
Lab08 Empirical Formula	

For each lab,
Hypertext Links to:
1 Slide per Page (Color)
2 Slides per page (Color)



LPT

Lab Briefing: Index 2

Color, 3 slides per pages (outline format with lines for taking notes)

Lab01 Science Processes
Lab02 Separation
Lab03 Chromatography
Lab04 Density
Lab05 Properties
Lab06 Sugar In Soda
Lab07 Hydrates
Lab08 Empirical Formula
Lab09 Reactions
Lab10 Stoichiometry
Lab11 Gases
Lab12 Solutions
Lab13 Antacids
Lab14 Titration
Lab15 Molecular Models

Black-and-White, 3 slides per pages (outline format with lines for taking notes)

Lab01 Science Processes
Lab02 Separation
Lab03 Chromatography
Lab04 Density
Lab05 Properties
Lab06 Sugar In Soda
Lab07 Hydrates
Lab08 Empirical Formula
Lab09 Reactions
Lab10 Stoichiometry
Lab11 Gases
Lab12 Solutions
Lab13 Antacid
Lab14 Titration
Lab15 Molecular Models

Jump to: Top

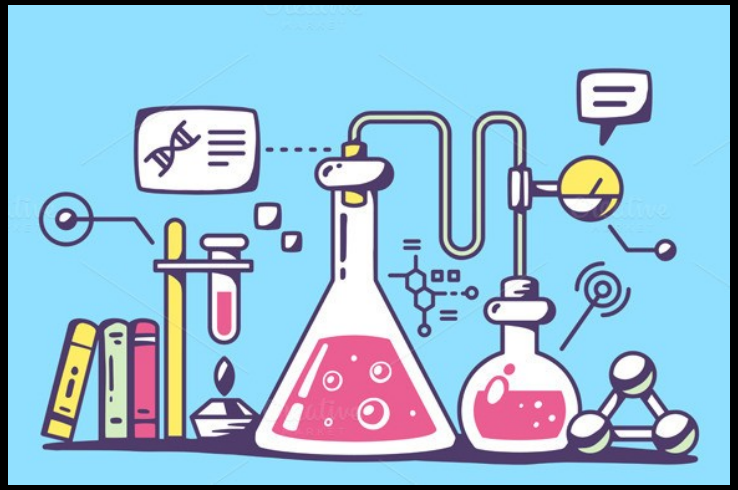
Color_1 Slide_Per_Page | Color_2 Slides Per_Page | Color_3 Slides_Per_Page | Black-and-White 3 Slides Per Page

Index Pages: Start Here

Annotated Outcomes | Course Documents | Course Information | Flash Cards
Lab Handouts | Lab Information | Lecture Materials
Lecture Slides | Math Review

Jump to: Top

For each lab,
Hypertext Links to:
3 Slides per Page (Color)
3 Slides per page (B&W)



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Lab Hand-Outs: 1

Chemistry is F U N

Laboratory Handouts

Index Pages: Start Here

Annotated Outcomes | Course Documents | Course Information | Flash Cards

Lab Information | Lab Briefing Slides | Lecture Materials

Lecture Slides | Math Review

The page contains the lab handouts. Lab briefing slides are listed on the Lab Briefing Slides Page.

The handouts and hand-ins are also on Blackboard in the Lab Handouts folder.
See Blackboard Lab Handouts folder for lab schedules.
As a courtesy to those with slower internet connections, no videos will be shown during class time.
To facilitate understanding, it is best to view the any lab-associated videos before the appropriate lab

Handouts and Hand-Ins should be printed and brought to the lab

Jump to:

Lab01Science Processes	Lab02 Paper Towels	Lab03 Thin Layer Chromatography
Lab04 Measurements	Lab05 Density	Lab06 Sugar In Soda
Lab07 Hydrate	Lab08 Moles	Lab09 Reactions
Lab10 Stoichiometry	Lab11 Gases	Lab12 Solutions
Lab13 Acids and Bases	Lab14 Titration	Lab15 Molecular Models

Lab 01 – Science Processes

Science Processes Handout	**Read before class**
Hand-In	Fill In data during lab … states of matter can be done before lab
Color Perception	A fun test of your color perception. (Only for personal enlightenment)
Scientific Method	Video describing the scientific method (3:03)
Bunsen Burner	Additional information on the Bunsen Burner.
BunsenBurnerVideo	Video demonstrating use of the Bunsen burner (4:30)
Bunsen FlameTemperature	Video demonstration of using wire to infer temperature (1:13)
States of Matter	Video Demonstration on states of matter (7:23)
FifthState	Video on NASA discovery of 5th state of matter (2:47)

Lab 02 – Properties of Paper Towel

Properties of Paper Towels	**Read Before Class**
Cellulose	Extra comments on cellulose
Lab Journals	Guidelines for preparing lab reports
Writing Procedures	Guidelines for writing procedures (To Do Lists)

Start Page

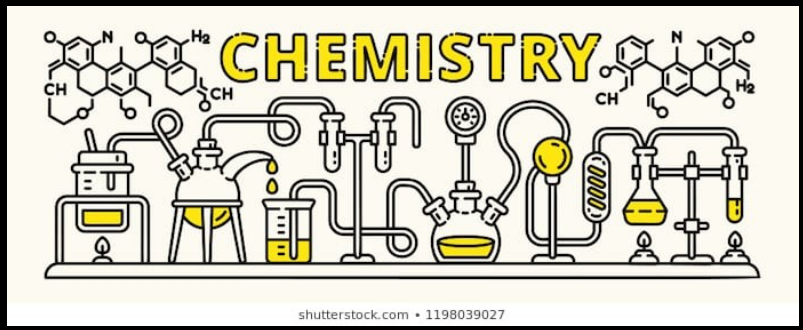
Hypertext Links to:

All the labs Contents

Specific Links for

Lab 1

Lab 2



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Lab Hand-Outs: 2

Lab 03 – Thin Layer Chromatography

Chromatography	**Read Before Class**
Theory Of Colors	Background information on color formation (Only for personal enlightenment)
TLC	Video animation analogy of thin layer chromotography (1:40)
TLC Theory	Video animation of TLC theory (4:28)

Lab 04 - Measurements

Measurements	**Read Before Class**
Measurements History	Video animation of the history of measurements (3:03)

Lab 05 – Density

Density	**Read Before Class**
Calculations	Summary of lab calculations
Using Calipers	Video Animation on using calipers (0:16)
Density	Video animation of density (6:02)
Density Tower	Video demonstration on building a tower of 9 different colored liquids (1:24)

Lab 06 – Percent Sugar in Soda Pop

Sugar in Soda	**Read Before Class**
GraphPaper	Use to plot data furnished data
Sugar In Beverage Facts	Fact sheet on sugar containing beverages (Only for personal enlightenment)
Sugar / Obesity DVDs	List of seven DVD's available on the topic of biological issues with sugar and obesity
Hydration Drinks	Video on sugar content of popular hydration drinks (6:48)

Lab 07 – Percent Water in Copper (II) Sulfate Pentahydrate

Hydrates	**Read Before Class**
Calculations	Summary of lab calculations
Thermal Decomposition	Video demonstration of loss, then gain of water from copper sulfate (1:35)

Lab 08 – Moles

Moles	**Read Before Class**
Calculations	Summary of lab calculations

Lab 09 – Chemical Reactions

Chemical Reactions	**Read Before class**
HandIn	Table for completing data and chemical reactions (saves copying table into the lab notebook)
Chemical Reactions	Video demonstration of major reaction types (5:09)

Lab 10 – Stoichiometry

Stoichiometry	**Read Before Class**
Calculations	Summary of lab calculations
SodiumCarbonate	Video demonstration of the reaction between Na_2CO_3 and HCl (1:08)

Hypertext Links to:
Labs 3 - 10

LPT

Lab Hand-Outs: 3

Lab 11 – Gases

Gases	Read Before Class
HandIn	Table for gas law lab data (saves copying table into the lab notebook)
Filling Data	Guide to completing the lab data tables
GraphPaper	Use to plot your Charles Law data
Sample Drawings	Sample Student Drawings (older version ... volume measuring device is now diffilment)
Charles Apparatus	
Boyles Apparatus	
Trapped Gas	
Photo of Assembled Gas Lab Apparatus	
Gas	Video describing gas properties (4:50)

Lab 12 – Solutions

Solutions	Read Before Class
Calculations	Summary of lab calculations
Using Solubility Curves	Summary of solubility curve information
Supersaturation	Video demonstration of supersaturation (7:44)
Seeding NaOAc	Video demonstration of seeding supersaturated sodium acetate solution (0:53)

Lab 13 – Acids and Bases

Acids and Bases	Read Before Class
HandIn	Tables for lab data (saves copying table into the lab notebook)
pHChart	Color chart of the colors of the cabbage dye indicator
HowAntacidsWork	Video demonstration of pH change of an acid with an antacid (3:18)

Lab 14 – Titration

Titration	Read Before Class
Calculations	Summary of lab calculations
Titration	Video showing an acid-base titration (4:01)

Lab 15 – Chemical Bonding & Molecular Models

Bonding Handout	Read Before class; Instructor will demo the entire lab
Modeling Site	Link to instructor's site that demonstrates simple molecular modeling (requires Java activation)
Ionic Solids	Video demonstration describing ionic solids (7:34)
Covalent Bonds	Video demonstration of covalent bond formation (5:42)
Metallic Bonding	Video demonstration of the metallic bond (2:50)

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Lab01 Science Processes	Lab02 Paper Towel	Lab03 Thin Layer Chromatography
Lab04 Measurements	Lab05 Density	Lab06 Sugar In Soda
Lab07 Hydrate	Lab08 Mole	Lab09 Reactions
Lab10 Stoichiometry	Lab11 Gases	Lab12 Solutions
Lab13 Acids and Bases	Lab14 Titration	Lab15 Molecular Models

Index Pages: Start Here

Annotated Outcomes | Course Documents | Course Information | Flash Cards | Lab Information | Lab Briefing Slides | Lecture Material | Lecture Slides | Math Review

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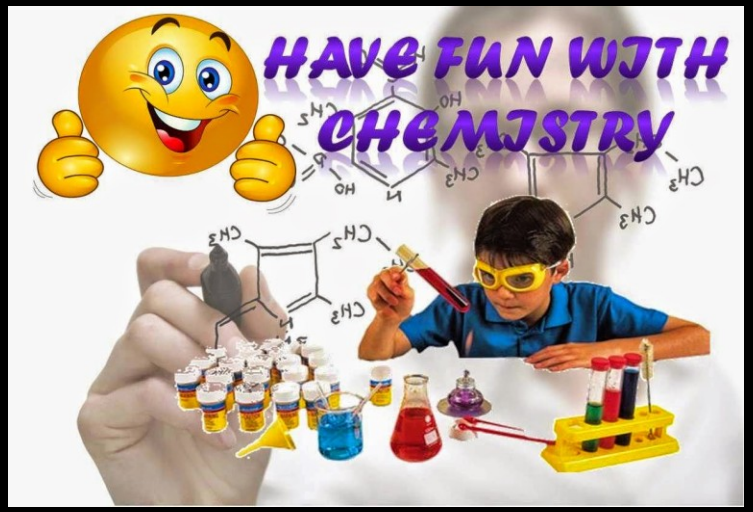
Jump to: Top

Hypertext Links to:
Labs 11-15



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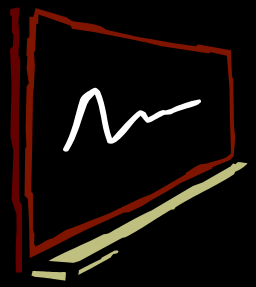
Summary of Course Materials and Their Location



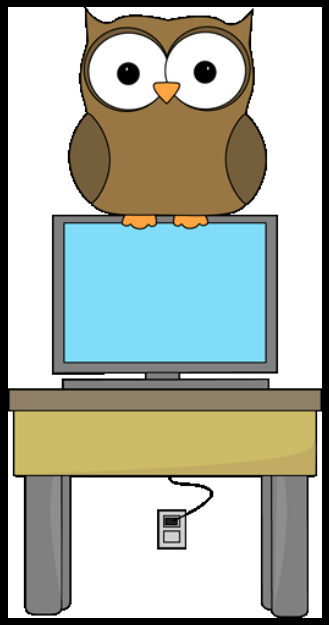
On Blackboard:

Everything Interactive:

- Tests
- Practice Quizzes

Changes Every Semester:

- Announcements
- Syllabus (Both Lecture & Lab)
- Schedules (Lecture, Tests, & Lab)
- Class Stats
- Grade Book



On Web Site:

- Instructor authored materials (slides, notes, etc)
- Supplemental material for lecture (videos, etc)
- Supplemental material for lab (videos, etc)

Summary of Course Materials and Their Location

On Blackboard: **(Red font indicates material found only on Blackboard)**

Announcements
Course Syllabus
Test Schedule

Practice Quizzes
Exams
Optional Practice Quizzes Using Instructor Media

Lab Hand-Outs
Lab Hand-Ins

Class Stats
Outcomes
Chemical Dictionary
Grade Book

Lab Syllabus
Lab Safety Links

DVD Transcripts

On Instructor Owned Media: **(Blue font indicates material found only on instructor-owned media)**

Course Information Documents
Outcomes
Lecture Slides
Lecture Notes
Annotated Outcomes
Flashcards
Reading List
Chemical Dictionary
Music Videos & Demos

Optional Practice Quizzes Using the Instructor Media

Lab Hand-Outs
Lab Hand-Ins

Lab Briefing Slides

Lab Safety Links
Extra Background Information
DVD Transcripts

(Black font indicates material found on both)

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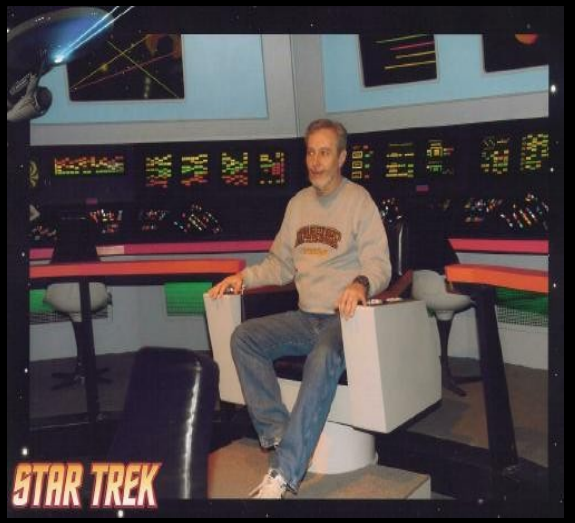
Using the Instructor's Stuff: Express lane on the road to success



Any problems / Issues: Contact Instructor
lptaylor@wccnet.edu
use CEM 101 in Subject Line

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