Chemistry for Non-Science Majors
(Chem-111)

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This Course is designed for non-science majors & aims to make you a bit more informed as citizens and voters on the many chemistry-related issues. This course also satisfies three General Education topic areas (see last page).

Course Goals:

Very simply, the primary goal of this course is ***change the way you see the world***, forever. Pretty much everything you can see and touch is made of chemicals or their components.

We, our bodies and our world are all made of chemicals: everywhere you look – almost everything you see or touch. So if we can understand even a bit of the physical underpinnings of the behavior of these chemicals, we have learned some very fundamental and broadly applicable things about ourselves and our world. This helps inform our understanding of our world, life, death and dances in between… at a very deep level. In essence I would like you all to be able to think and "see" as chemists, and see the world from a molecule's point of view.

More specifically, I would like you all to take a little a journey (I'll come along) …

1) To understand (some of) the basic principles governing the behavior of matter – the stuff we're made of: life, rocks, air water, soil, almost everything you see...

2) To learn enough about science, math & chemistry to help you become semi-conversant in it, be more able to spot pseudoscience and become more informed voters & citizens.

3) To be able to access information, use it and communicate it to folks in areas where understanding even a bit a about science & chemistry can make a difference.

4) To enhance your sense of wonder and amazement for the atomic dances we live in. (get a bit of insight into the amazing atomic & molecular dance that is us, our home, our universe.)

- from the subatomic, to the extragalactic… it's all pretty much a twirling dynamic dance -

Any student with a documented disability who would like to request accommodations should contact the University Disability Services Office - Hale Kauanoe A Wing Lounge, 933-0816 (V), 933-3334 (TTY), shirachi@hawaii.edu - as early in the semester as possible.

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* Course Schedule for Spring 2012

* (class survey and occasional instructional films may modify this initial schedule plan)

Instructor: *Jean-Pierre Michaud, MS, Ph.D. ONG* *(974-7320 jonpierr@hawaii.edu)*

*Office Hours: TR 3:30-4:30 * OR * by appointment* *Text:* Conceptual Chemistry by John Suchocki, 4th Ed

Date		Chapter	Topic
	Tue	1	Course Goals, Syllabus, Grading; & What's 'science' anyway?
	Thu	1	What is science, what are some of its strengths and limitations?
	Tue	chem chat + text	Pseudoscience - both ubiquitous and oft profitable - caveat emptor!
	Thu	2	Matter - so what's this stuff made up of? - and where can we get some?
	Tue	2	More about Matter (it's not just for breakfast anymore)
	Thu	chem chat + text	Environment(al) Chemistry - what is it, who needs it, why worry?
	Tue	**Exam 1**	All material to-date
	Thu	3	The Elements (where do they come from?)
	Tue	3	More Elements (don't leave home without them!)
	Thu	chem chat + text	Energy (best bring some of this everywhere you go too)
	Tue	chem chat + text	*Chemistry of Valentine's Day* / Lupercalia / etc. ... dances & ;)
	Thu	chem chat + text	Materials sciences - olde school and new nano-tech materials
	Tue	4	Subatomic Particles
	Thu	5	The Nucleus
	Tue	**Exam 2**	All material to-date; emphasis on material since last exam
	Thu	chem chat + text	Health
	Tue	6	Bonding atoms + (attachments that bind us, break-ups, drama…)
	Thu	6, 7	Bonding molecules (Ch 6) - and How molecules mix (Ch 7)
	Tue	7	How Molecules mix (relationships, molecular parties, super-critical fluids)
	Thu	8	Water (don't go into outer space – or leave home - withou
	Tue	**Exam 3**	All material to-date; emphasis on material since last exam *(Vernal- interlude)*
27-29	Mar	Spring Break!	
	Tue	9	Reactions (/ I can't get no…)
	Thu	9	Reactions (yeah, there was some real chemistry between us… /)
	Tue	10	Acids & Bases - in our bodies & the environment
	Thu	11	Oxidations & Reductions (atoms & molecules 'swap sweat')
	Tue	chem chat + text	Longevity
	Thu	12	It's Organic!!!
	Tue	12	Even more Organic… & what are GMOs? What poss benefits and hazards?
	Thu	Testable Video	Topic to be determined; byopc (where pc = explosively decompressed endosperms)
	Tue	chem chat +web	Chemistry of Consciousness (tales (tails?) -of molecules & mind! - mice & men are down the hall…)
	Thu	chem chat +web	Space Chemistry &/or 007 Chemistry *(the name's Bond, Atomic Bond)*
10?	May	*time*?	Final Exam go on-line to find Final Date & time

General Education 'credit' areas and area-related criteria

- as published by the General Education Committee

Quantitative Reasoning criteria

- Enable students to understand the use of mathematical or symbolic concepts as representations of real world events and phenomena;
- require students to develop skills in chains of reasoning from data to conclusions;
- require students to develop skills in problem-solving using mathematical or symbolic concepts and technigues.

One or more rigorous quantitative assignments that assess student learning and are substantially correlated with the final course grade.

Natural Sciences

- use the terminology of computational, physical or biological sciences;
- include knowledge and theories of the computational, physical or biological sciences;
- foster a student's ability to perform inquiry that is guided by the scientific method, including observation/experimentation and scientific reasoning/mathematics.
- One or more rigorous written assignments (totaling a minimum of 1250 words) and /or quantitative assignments that assess student learning and are substantially correlated with the final course grade.

Global & Community Citizenship

- Enhance awareness of local and global community and environmental issues;
- stress application of knowledge and skills to solving community or environmental challenges and/or benefiting the community through course conducted workshops;
- encourage interaction with community, business and/or government sectors in order to effect positive change;
- encourage students to become informed and active participants in their communities;
- include, but is not limited to, a field work, community workshop, service-learning component, or a research-based project that utilizes field work to explore ways in which one can contribute to the good of the global and/or local community.