My Big Little Golden Book About

PLANT BASED ENTHEOGENS

By Pacha Mama & Illustrated By Gwilym Llwydd
The Physician’s Garden

Fall 2017

Transfer Student Seminar Course taught in the fall semester as needed
Course limit is 20 students, must be a first year transfer student
Meets Tuesdays 2-3:15 (rm 1377 GSB) and Thursdays 2-4:45 (242 Wilson Hall) for 4
instructor-student contact hr/wk  Credits 3 hours

Week 1

Tuesday, Aug 22nd  Introduction (overview, expectations, assignments), Brief
introduction to Systematics. Scientific paper assignment. Discuss transportation for
upcoming field trip. Sign up for GAEA club.

Thursday, Aug 24th  Presentation by the Gardening and Ethnobotany in Academia
club, GAEA. Pass along last year’s project accomplishments to this year’s committees.

Presentation by Vlad Yefremov (vladhhsr8@hotmail.com) on home-made preparations
of botanicals.

Discussion on scientific method. Beginning of your research project to find plant
compounds that are antibiotic. Work in pairs.

Week 2

Tuesday, Aug 29th  How the Pacific Yew, the Periwinkle, and the Autumn Crocus
Cured Cancer (Taxus brevifolia, Colchicum autumnale, Catharanthus roseus,
colchicine, tubulin and microtubules) Read assigned science paper before Thursday
class.

Thursday, Aug 31st  UNC Herbarium, Plant Systematics. Learn to use a key to identify
plants. (Dr. Alan Weakley and Carol Ann McCormick).

Begin research on identifying the plant you would like to test for antibiotic properties.
Pair up into teams.

Week 3

Tuesday, Sept 5th  The Weed that Killed Lincoln’s Mother (Eupatorium rugosum,
white snakeroot, The Milk Sickness, tremetol, citric acid cycle). Choose a captain to
lead the class to the NCBG on Thursday

Thursday, Sept 7th  North Carolina Botanical Garden (Wendy Wenck) Class rides the
city HU bus to NCBG (off @ McDonald house stop). Leaves Manning stop at UNC
hospitals at 2:24). Return to campus on westbound HU at 4:15. It will be hot and buggy. Dress cool and bring bug repellent. Rain or shine. Meet Mike Dunn at Gazebo Cell # 919-612-8790

**Week 4**

**Tuesday, Sept 12**<sup>th</sup> Rare Botanical Book Collection Health Science Library (Dawne Lucas)

**Thursday, Sept 14**<sup>th</sup> Committee Assignments, Visit the Sam Hitt Medicinal Gardens, Garden work. Reconvene to lab to read letters from 2016 class and prepare your semester goals.

**EXAM 1- take home**

**Week 5**

**Tuesday, Sept 19**<sup>th</sup> Holy Hot Pepper! (Capsicum, the deadly nightshade family, Capsaicin, vanilloid receptor subtype 1, ion transport)

**Thursday, Sept 21**<sup>st</sup> Mountain Gardens- native S. Appalachian and Chinese Medicinal Herbs, Joe Hollis-Speaker, and Lauri Lawson, Garden Design and Construction Consultant, Work on Medicinal Gardens, prepare to get hot and dirty.

Mini-presentations by each team to other teams on the exact semester goals for the semester. Presentation likely outside in the garden. Provide 5 hard copies (for other teams)

**Week 6**

**Tuesday, Sept 26**<sup>th</sup> A Walk in the Woods of the Human Immune System (Toxicodendron [poison ivy], urushiol oils, human immune system and the allergic reaction).

**How a Lowly Bacterium Helped Farmers Feed the World.** Short presentation on Agrobacterium-mediated transformation.

Arrange transportation to Syngenta for Thursday.

**Thursday, Sept 28**<sup>th</sup> Visit state-of-the-art greenhouses at Syngenta RTP

MUST HAVE CONFIRMED TIMES FOR YOUR NCBG SERVICE DATES AND TIMES BY TODAY. COMPLETED THIS SERVICE BEFORE THANKSGIVING
Week 7

Tuesday, Oct 3rd  The Death of Socrates  (*Conium maculatum*, *Strychnos toxifera*, hemlock alkaloids, curares, poison arrows, neuromuscular synapse, nicotinic acetylcholine receptor). Also- short lesson on plant transformation.

Thursday, Oct 5th  Work on the UNC Medicinal Garden, Part III: implementing

Week 8

Tuesday, Oct 10th  The Death Angel (*Amanita*, amanitin, mRNA, RNA polymerase II, transcription)

Thursday, Oct 12th  Guest Mycologist, Dr. Henry van Cotton, cooking mushrooms  - making *Pleurotus* bags, mushroom walk

Week 9

Tuesday, Oct 17th  The Hound of Hades  (The dog named Cerberus, *Cerbera*, Suicide Tree, Kerala India, Oleander, spies with poisons, cardiac glycosides, the heart, Na+/K+ pump)

Pushkin's Upas Tree and the Thirteen Concubines  (*Antiaris toxicara*, The Upas tree, cardiac glycosides in art and lore)

Turn in your plant material to be tested for antibiotics on this day. 25 mL of material in a 50-mL Falcon tube (provided). Label tube with names and information about material.

Thursday, Oct 19th  Fall Break 2016

Week 10

Tuesday, Oct 24th  EXAM 2

Thursday, Oct 26th  UNC School of Pharmacy- Medicinal Chemistry Research, Guest: Dr. Kenneth Pearce  Closed shoes, lab coats, and eye protection required.

SERVICE WORK FOR HERBARIUM MUST BE COMPLETED NOW

Week 11

Tuesday, Oct 31st  Homer's Cyclops  (California corn lily, *Veratrum californicum*, the teratogen cyclopamine and the hedgehog signaling pathway)
Thursday, Nov 2nd  Testing the antibiotic effect of plant extracts.

Short presentations of Garden groups to each other showing how your group has integrated with at least one other group.

Week 12

Tuesday, Nov 7th  Opiates and \( \mu \) (Papaver somniferum, poppy, opium, morphine, mu 2 receptors, G-protein coupled signaling)

Beautiful Lady, What Big Eyes You Have (Atropa belladonna, deadly nightshade, muscarinic acetylcholine receptor, G protein coupled signaling in muscle cells)

Thursday, Nov 9th  Design a T-shirt, Committee meetings. Group presentations given expectations and time lines. Collect your data and Communication between groups - must be perfect by this point.

Week 13

Tuesday, Nov 14th  Limits to Understanding Native American Plant Use, David Cozzo, Project Director, Revitalization of Traditional Cherokee Artisan Resources

Thursday, Nov 16th  Final work on the UNC Medicinal Gardens- Complete all tasks, prepare for presentations

Week 14

SERVICE WORK FOR NCBG MUST BE COMPLETED BEFORE Nov 21st

FACULTY ASSIGNMENT DUE Nov 21st

Tuesday, Nov 21st  No Class Thanksgiving Week

Thursday Nov 23rd  No Class Thanksgiving Day

Week 15

Tuesday Nov 28th  Discuss the assigned etoposide paper in class

Thursday Nov 30th  20-minute Presentations of Garden work by each committee.

Class Photo.  Turn in: Team letters to 2018 Class, team presentation, and all other tangible items to be filed. Files as pdfs must be labeled as instructed.

SERVICE WORK FOR GAEA CLUB MUST BE COMPLETED BEFORE Nov 31st
Week 16

Tuesday Dec 5th    EXAM 3

Assignments:

Food Evolution: View this documentary and participate in the panelist discussion. Location and time TBD

Coffee with Faculty- You buy. - A 1-2-page article on a UNC researcher related to this course will be assigned. It will contain a photo of you and your interviewee drinking your coffees plus illustrated with one or more figures on the science. DUE BEFORE Thanksgiving Day.

Any life science faculty except:


Team Assignments: 20-min+ Presentation, Letter to 2018 Class, other tangible items such as a brochure or letter of solicitation DUE BEFORE EXAM 3. NOTE THAT ALL ITEMS MUST BE IN A WORDDOC OR PDF FORMAT (EVEN YOUR PRESENTATION- note that companies like Prezi charge $$ for pdf files- don’t use them).

You are required to spend 1 ½ h service to the UNC herbarium (to be completed before the NCBG fall plant sale), plus 1 ½ h service to GAEA club (to be completed before Thanksgiving- hours working outside on the garden for class count), and 1 ½ h service to the NCBG (to be completed between the NCBG plant sale weekend and Thanksgiving).

You are required to be a member in good standing with the Gardening And Ethnobotany in Academia Club (GAEA) for one year. Show proof of membership, paid dues, and 1 ½ h service/year, meeting attendance.

Absence and tardy penalty:

You may not miss a class without prior excuse. If you are late or miss a class, a full grade will be taken off your final grade for each instance.
Reading:

No course pack.  *Wicked Plants* by Amy Stewart- to be purchased on line- not the book store. You must **own** a copy of Newcomb’s Wildflower Guide.  **Buy it.** You will read a scientific paper for discussion to be determined and maybe a book chapter needed for the last lecture. The lectures and the scientific paper are located at your Sakai page.

Grading:

Grading: Exams 1 through 3 will account for 50% of the total final grade, the remaining 50% are for enthusiastic participation, the coffee meeting with faculty report, service, final presentation, etc. The grading is not curved. Missing or late assignments will be given a score of zero.

Final letter grade assignments are based the following

**A** - Mastery of course content at the highest level of attainment that can reasonably be expected of students at a given stage of development. The A grade states clearly that the student has shown such outstanding promise in the aspect of the discipline under study that he/she may be strongly encouraged to continue.

**B** - Strong performance demonstrating a high level of attainment for a student at a given stage of development. The B grade states that the student has shown solid promise in the aspect of the discipline under study.

**C** - A totally acceptable performance demonstrating an adequate level of attainment for a student at a given stage of development. The C grade states that, while not yet showing any unusual promise, the student may continue to study in the discipline with reasonable hope of intellectual development.

**D** - A marginal performance in the required exercises demonstrating a minimal passing level of attainment for a student at a given stage of development. The D grade states that the student has given no evidence of prospective growth in the discipline; an accumulation of D grades should be taken to mean that the student would be well advised not to continue in the academic field. 

**F** - For whatever reasons, an unacceptable performance. The F grade indicates that the student's performance in the required exercises has revealed almost no understanding of the course content. A grade of F should warrant an adviser's questioning whether the student may suitably register for further study in the discipline before remedial work is undertaken.