Poster Session
This Course and Creativity

(1) True, the written tests seem to encourage memorization while leaving the thinking & connecting to yourselves. I can’t think of anything to alter this part except for encouraging you to ask more questions during the lectures.

(2) The lab part of the course is there to encourage creativity. And experimentation. Using examples, it shows how to find (= confirm the presence of) substances like pigments, tannins, essential oils, etc. and also how to get them out of a plant. Considering that experimentation is some conversation with nature, it is like learning a new language. You are no longer talking to instructors but to nature herself, to plants.

(3) The poster session is the ultimate part of the course that is encouraging creativity. They encourage what Sternberg (see manual) calls the generation of an idea that is entirely your own. First, you follow your own interest and talents. Second, you chose your own topic in a discussion with your lab mate. Making the choice you are considering the risk of the topic; i.e. will I find enough interesting stuff in books or on the net; will I be able to figure out an experiment or demonstration that connects to this topic in a meaningful way?

Defending your ideas …
## The Poster talk - technical

1. The poster talk has two parts: the presentation and the discussion. Consider prompting some questions about things you cannot cover in the time of the talk.

2. The poster talk will give a team of two 10 min for the talk plus time to answer questions.

3. The poster talk should have a practical part (demos, experiments, exhibits) and a theoretical part that provides the larger context.

4. The poster talk can be using classical poster format (poster board with pictures) or be a PPT. If you use power point it is your duty to make sure it runs. It is a good idea to save it in an older version Powerpoint 97-2003 so that it runs on older sets like the Bastyr class room computers. If you have a Mac you need a special adapter.

5. The poster should have a catchy title. This is America. Where people have a ultra-short attention span and are tortured continuously by ads and commercials. So make sure you get their attention.
The Poster talk – How to find a topic?

1. Creativity. **Where do ideas come from?** Let us see.
   Interests and observations. Nature and Neighbors…
   **In practical terms, there are two ways to get to a topic.**

1(a) **Ask yourself the question:** What is it in the field that you always wanted to know more about or at a deeper level?

1(b) **You have no special interests in the field yet or you ran out of time or you just want to get to through with this course.** In these cases you can go to the IntroBot website and check for topics of interest in the topics of previous years. This sounds too arrogant, anybody can profit by the ideas of other people.

2) **If you found a topic of your interest, you are not done yet. As a second step of your preparation** you have to make sure that there is enough info on the net or in books to produce an interesting & viable presentation.
How to make an effective presentation?
(stolen or preserved from this website)
1. Tell Them...
...what you are going to tell 'em

1: Title
Title; speaker intro & contact info; kick-off tag line

2: Company
Company overview; w/ elevator pitch or mission stmt

3: Players, Problem & Pain
Market definition (get problem & pain but market size)

4: Pain Killer
ROI

5: Technologies
Our "magic"; intellectual property

6: Competition
Who else is doing this? (Don’t forget status quo & home-grown)

7: Biz Model
Here’s how we’ll make money

8: Go to Market
Our marketing plan, leverage points

9: Metrics & Money
Success metrics (bus drivers) & revenue/margin projections

10: Team
Here’s who will be responsible for our success; maybe you too

11: Timelines & Status
To date (on OPM); next “x” months; use of proceeds

12: Why Us?
Here is why you should invest in us

2. Tell Them

3. Tell Them...
...what you told them

43
The Art of Pitching

Two Parts...

Content

1: Title
2: Company
3: Players, Problem & Pain
4: Pain Killer
5: Technologies
6: Competition
7: Biz Model
8: Go to Market
9: Metrics & Money
10: Team
11: Timelines & Status
12: Why Us?

Delivery

What

How

95%

5%
5 Obey the 12/20 rule

...about a dozen slides in twenty minutes
The Art of Pitching

Change People’s Pulse

Pitch
Volume
Speed

High
Loud
Fast

Low
Soft
Slow
How to make a talk that is short and impressive?

Bill joos blog.com ➔ the art of pitching; it is typ American but useful

The Art of Pitching

Two Parts...

Content

- Main
- Mission & Vision
- Challenges
- Market & Money
- Technologies
- Problem & Pain
- Company Name
- Product
- Brand
- Big Idea
- What
- Why
- How

Delivery

What

50%

How

50%

5

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### How to make the Presentation of others count for you

In order to set an example for good communication among scientists and other professionals, we will use 5 min after each presentation to ask questions. These questions should make sure that you understood the topic, the interest behind it and even the intricacies of the presentation well. **I will distribute a questionnaire before each presentation and you as an active audience will fill it in.**

1. Can you summarize the message of the poster in one sentence? Yes/No. If yes, the sentence would be: “………………………………………………………………………..

2. Did you learn something (a) completely new (b) a new aspect of something you were already aware of? © nothing new  If you had to sum up that what you learned it would be: “………………………………………………………………………..

3. What was the most interesting or catchy part of the presentation? ……………
……………………………………………………………………………………………..”

……………………………………………………………………………………………..

5. How did you find was the integration between the experimental part and the general presentation of the “bigger picture”? …………………
Examples for potential Presentations

Needs improvement with more good examples !!
Make your own toothpaste

A Coconut oil is a key ingredient in homemade toothpastes because it's a powerful, natural antibacterial and antifungal - so it works to kill harmful bacteria in your mouth while you brush. The oil kills the bacteria that are responsible for gingivitis -, you might want to massage some coconut oil into your gums regularly.

B. The second key ingredient in homemade toothpastes is baking soda. Baking soda is a mild abrasive and it is alkaline to neutralize acids in your mouth that are often at the root of tooth decay. Baking soda also absorbs odors.

A+B =To make your own toothpaste, just use a 1:1 volume ratio of coconut oil to baking soda. Start with 2.5 tablespoons of coconut & 3 tbs of soda. Also add peppermint oil (10-15 drops) for flavor & stevia for sugar-free sweetness. Alternatively, you can use cinnamon.

Store it in a glass container with a lid. Then, just dip your dry toothbrush into it. The mixture doesn't need to be refrigerated and because coconut oil is antibacterial, antiviral and antifungal, it'll help keep your toothbrush clean and sanitary too.
Which herbs fight gingivitis

Swelling, bleeding gums, soreness, and irritation are all common symptoms of gingivitis. Beyond oral hygiene, gingivitis can be reversed using a few home treatments.

1. Tea tree oil. The antibiotic properties of this oil have been found to reduce gingivitis symptoms naturally by a significant margin.

2. Green Tea - Green tea is popular for its health benefits, but many people do not know that it is also an alternative medicine for gingivitis. To use green tea as a gingivitis treatment, purchase loose green tea leaves (without any additives or other herbs) and prepare a tea by pouring hot water over the leaves. Once the tea has cooled, strain it and apply the liquid to your gums and teeth with a toothbrush.

A link between vitamin C deficiency & gum disease is known. Cranberry juice prevents bacteria from sticking to teeth.
Task 4: Making natural sunscreen from plants

Sunscreens are not regulated by the FDA. Many contain cancerogenes and Titanium oxide – a space age material.

The most common UV protectant that all plants use is flavonoids. These are mainly transparent to slightly yellow and hence are better suited for sunscreen than the brightly colored anthocyanins.

Start with 100 g (or 1 cup) of dry or fresh plants containing flavonoids: Yarrow Achillea, evergreen huckleberry Vaccinium parvi, Himalayan blackberry, onion peels, etc.

You divide the plant material in two equal parts and extract it with 50 ml (1/4 cup) olive oil and 50 ml water (simmer for 15 to 30 min). You add beeswax to the olive oil and let it melt, stir frequently. Let both extracts cool. Than you bring the olive oil/beeswax into a blender and then add aqueous extract while giving a few pulses of blending (overdoing leads to unmixing). You can add some essential oil for attractive smell (optional).

Your sunscreen is done. Clean the blender and the glassware. Fill your sunscreen into a dark Petri dish or other container. Store refrigerated.
distilling aromatic herbs is a long and weary process needing expansive equipment and lots of herbs. ➔ no longer. Here is the EssenEx 100 essential oil extractor. The EssenEx uses an ice core to condense the vapors produced when the plant material is heated inside a microwave oven. It takes 6 minutes ...

You need a pre-frozen ice cone and 100 g of the desired aromatic material: ..............................................................
You fit it around the shielded glass beaker. Add the upper funnel shield and the metal top with the ice core and insert device together with a water-filled mug into MW oven. Run oven for 8 min under high power. Open door and after a min remove device (hot!!!).

Remove cover and upper shield and take out the collector beaker. Notice that it is cold and filled with the melt water from the ice cone plus the condensate. Some essential oil may be floating on top of the hydrosol. Ahh
Stain your cotton T-shirt

1st mordant: do not dip dry cloth into your dye bath, it will streak. Put it into a mordant like a warm mixture of 1 cup of vinegar + water 3 cups + 0.25 caps of salt.

2nd dye bath: prepare pieces of red cabbage, gold dry onion peel, red onion peel or red beet and add 1.5 x volume of water. Bring to a boil and simmer for 10 to 120 min. Strain and eat!

3rd staining: dip tied-up cotton into hot, wool into cold plant extract and let it simmer for 1 h (red beet) or 8 h (red cabbage) or walnut hull extract (3 h). Pull out, blow or iron the cloth dry. This achieves heat-setting of the dye to the fabric.

Suitable fabrics:
100% cotton, linen, nylon, 60% cotton blend
Task 1: Alkaloid crystals of caffeine

“the essence of coffee is caffeine”
It is satisfying to see the stuff that affects us:

1. Using a mortar and pestle, homogenize
   (a) 10 roasted coffee beans  
or  
   (b) 10 g dry black tea
2. Put the powder into a metal dish covered with a microscope slide.
3. Set this on top of a heater & heat until vapor develops.
4. Replace the slides 2x with cold ones & watch for sublimated crystals.
5. Bring the slides under a microscope and watch under 40X objective.
   They look like needles & are pure caffeine = 1,3,7 trimethylxanthin.
6. If available, use polarization filters to verify crystalline nature!

Sketch the caffeine crystals

Caffeine is a bitter, white crystalline xanthine alkaloid that acts as a stimulant. While toxic at high doses, normal use has protective effect against some diseases. Caffeine can have both positive and negative effects on anxiety disorders.
Task 2 : Walking on a fat layer (linoleum)

The linoleum comes from Latin "linum" (flachs) and "oleum" (oil)

First, oxygen is blown into the oil, which is kept under 80-120°C. After an hour you will see the formation of a semi-solid skin layer, consisting of oxidized flachs oil or Linoxin. Adding glycerol, and PBO or lead oxide will accelerate the process. Linoxin is a triglyceride like other oils and fats.

Lino is a floor covering made from renewable materials such as solidified linseed oil (linoxyn), pine rosin, ground cork dust, wood flour, and mineral fillers such as calcium carbonate, most commonly on a jute or canvas backing; pigments are often added.

Literally:

You are walking on a solidified fat layer.
**Task 5 : Fluorescent Finger prints**

Fingerprints can be made visible with fluorescent method.

First, make a print of your finger on a piece of paper (this page in lab manual)

(2) Sprinkle a little anthracene powder over the print. Do not Touch the powder, it is considered

(3) Dump off excess powder into Petri dish for disposal. Examine the print under UV light. Anthracene clung to the oil deposited from finger.

**Anthracene** is a solid polycyclic aromatic hydrocarbon consisting of three fused benzene rings. Anthracene is used in the production of the red dye alizarin and other dyes. Anthracene is colorless but exhibits a blue (400-500 nm peak) fluorescence under ultraviolet light. Anthracene is an organic semiconductor. It is used as a scintillator for detectors of high energy photons, electrons and alpha particles. Unlike many other polycyclic aromatic hydrocarbons (PAH), anthracene is not classified as carcinogenic OSHA
Retroreflective leaves – *Fittonia verschaffeltii*

If the epidermis of a leaf of *Begonia discolor* is removed by a surface section or peeling, one can mount it under low magnification and see focussed light points at near distance to the epidermis. The focussing of light by lens-shaped epidermis cells can be disturbed when the leaf is submersed in water having a similar refractory index as the lens cells. Other leaves that behave this way are *Begonia, Humulus, Ostrya vulgaris, Fittonia, Tropaeolum, Campanula persicicola,*


G. Haberlandt (1905 ) *Die Lichtsinnesorgane der Laubblatter, Leipzig, Engelmann Verlag*
Weird Seeds

*Trapa natans* or Bull’Horn or water caltrops are a species in the family of the water chestnuts. The seeds are 6 cm in diameter and look like a Bull’s head. The species are *floating annual aquatic plants*, growing in slow-moving water up to 5 meters deep, native to warm temperate parts of Eurasia & Africa.

Do not eat them raw because they contain a harmful parasite. Just steam or boil them in water, add some salt and crack the shell to reveal a creamy flesh.

prehistoric populations of Southern Germany have relied significantly upon wild water chestnuts to supplement their normal diet. Today, water caltrop is so rare in Germany that it is listed as an endangered species. Why?
*Pseudomonas syringae* is a rod shaped, Gram-negative bacterium with polar flagella. It can infect a wide range of plant species, apples, tomatoes....
The smell of Carvone

Mint leaves and Caraway seeds both contain a molecule called carvone.

However, the two carvone molecules are actually not identical, they are mirror forms or stereo isomers.

1. With a spoon, crush the caraway seeds in a bowl.
2. With another spoon, crush the mint leaves in another bowl.
3. Smell the difference!
When you grate lemon or orange peels you release volatile oils from the secretory cavities into the air. The smell receptors in your nose absorb the molecules and send a signal to the brain, which interprets the smell.

Orange & Lemon peels both contain a molecule called **limonene**. However, the limonene in the orange has a different structure than that in the lemon. The stereo isomers actually have a different smell.

1. Grate a small piece of orange peel into one Petri dish.
2. Grate a small piece of orange peel into another Petri dish.
3. Smell the difference!
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3. **What was the most interesting or catchy part of the presentation?** ……………

4. **What part did you like best about the experimental idea?** : “

5. **How did you find was the integration between the experimental part and the general presentation of the “bigger picture”?** …………………