Poster Session
This Course and Creativity

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(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?

memorizing: you are over-informating us !!!

Ah, finally! talking to mother Nature …

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 Power point 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 topic

(1) It is creativity. Where do ideas come from? Let us see. Interests and observation. Nature and neighbors. There are two ways to get to a topic.

(A) What is it in the field that you always wanted to know or learn at a deeper level?

(B) You have no special interests in the field and just need to get to through this course. In that case it is permissible to go to the IntroBot website and check for topics of interest in the previous years and presentations.

(2) If you found a topic of your interest, you have to make sure that there is enough info on the net or in books to make this a viable presentation.
What follows now is a selection of some ideas that could be starting points for poster presentations. You can read through them but if you have already an idea this would not be necessary!

Go through it fast but pay attention to the last three slides showing you how to prepare an effective presentation style.
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.
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.
Task xxx: Color Glasses affect your Mood

Color Therapy Glasses PRO Style SET of 7

Set of 7: Red, Orange, Yellow, Green, Blue, Indigo, Violet (Purple)

US $89.95

These glasses are are on ebay together with

Introduction to Colour Energy - Inger Naess. Color Therapy

US $5.95
Boring little white flowers like the daisy ...

are in fact highly interesting. Of course you have to bring inquisition and a brain into the equation.

The daisy (Saxon: day’s eye) is a true sun lover: it opens when the sun shines & closes in the evening & on sunless days. If you look at them carefully in the early morning when the sun is not yet up: you will notice that the flowers are still closed & the tips of the petals are tinged blood red. When the flower opens the red seems to have gone.

Now you take your dark blue sunglasses or a filter of the same quality and look at the daisies again!

What do ya see???
“ I see ah, oh oh my gooood.
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
Reduce your appetite with blue sunglasses!

you eat too much…
The view of colorful food throws you into a feeding frenzy?

Just wear blue glasses during your meals!

This is what you will see …
This is what you will feel …
This is what you will eat …

Blue sunglasses are popular for a different reason as well: red, orange, yellow, golden brown color will increase our appetite. And blue, the opposite. ~ just buy and wear this sunglasses during your meals and you will eat less …
Task xxx: Make your own hydrosol

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
The smell of Limonene

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!
The EssenEx essential oil extractor is an apparatus that fits into your home microwave and allows you to extract your favorite scented oils. Using plants such as lavender, mint, and many others from the garden you can now make your own oils as simple as making popcorn for $150.

The EssenEx uses an ice core to condense the vapors produced when the plant material is placed in the microwave. Microwave extraction is similar to steam distillation in the fact that they both use steam to extract the essential oils. The difference is the EssenEx utilizes the water in the plant material to create the steam instead of from a diesel or natural gas boiler.
Thanks for inspiring new ideas and experiments

The interaction with this class proved very fruitful for

Who? ……… ➔ me

Since working with you I modified several experiments and wrote quite a few new ones.

Here are examples from the last lab!
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 we 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) This we set on top of a heater & heat until vapor develops.
(4) we replace the slides 2x with cold ones & watch for sublimated crystals
(5) Bring the slides under a microscope and watch under 40 X objective.
They look like needles & are pure caffeine = 1,3,7 trimethylxanthine.
(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.
Caffeine Testing Strip)

Caffeine is a naturally occurring substance found in the leaves, seeds and fruits of more than 60 plant species. In moderate amounts, caffeine can increase alertness, relax air passages to improve breathing and allow some muscles to contract more freely. But it can also increase heart rate, constrict blood vessels, cause insomnia, headaches, nervousness and dizziness.

Silver Lake Research Corporation eliminated guessing with the debut of D+Caf™ Test Strips, on-the-spot caffeine test. Available immediately on caffineetest.com and soon in retail stores nationwide (daahh not true!!! RS), D+Caf allows consumers to simply and instantly determine whether their decaf beverages are truly decaffeinated.

A consumer needs just half a teaspoon of a beverage to perform the test (the test sample should not be consumed). A test strip is dipped into the sample for five seconds and removed; results are available in 30-60 seconds. A simple visual comparison of resulting lines signals decaf or not decaf.

Lines of the strip are marked either "D" or "C." If a drink has more than 20 mg of caffeine, the "C" line will appear bolder. If <= 20 mg of caffeine, the "D" line will appear bolder, meaning that it contains 6 to 10 mg of caffeine - the requirement of a "decaf" label.
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 3 : Oil can cause fire

Never toss oil-soaked paper or textile towels into the garbage !!!

Most vegetable oils oxidize at the interface with air just like flachs oil forming linoxin. Oxydation, however, forms heat, which will be dissipated by liquid oil. However, when you soak paper or cloth with oil, oxidation happens at a large surface and dissipation is bad ➔ **heat and fire.**

(1) Use a styrofoam block that you can fill with cotton balls. Take cotton and soak it with: (a) flachs oil, (b) olive oil (c) canola oil
(2) Insert thermocouples or thermometers together with a stopper into the styrofoam.
(3) Measure temperature after: ➔ 0 min 30 min 60 min 90 min 120 min

**Heat formation in oil-soaked cotton**

<table>
<thead>
<tr>
<th>Time</th>
<th>flax</th>
<th>olive</th>
<th>canola oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 min</td>
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<td>30 min</td>
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<td>120 min</td>
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Task 4: Making natural sunscreen from plants

Sunscreens are not regulated by the FDA. Many contain cancerogens 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.
Task 5: Fluorescent Fingerprints

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)

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

2. 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
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 focused light points at near distance to the epidermis. The focusing 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

*Pseudomonas syringae* is a rod shaped, Gram-negative bacterium with polar flagella. It is a plant pathogen which can infect a wide range of plant species, and exists as over 50 different pathovars, all of which are available to researchers via international culture collections such as the NCPPB, ICMP, and others.

*P. syringae* also produce Ina proteins which cause water to freeze at high temperatures. Since the 1970s, *P. syringae* has been implicated as an atmospheric "biological ice nucleator", with airborne bacteria serving as cloud condensation nuclei. The species plays a larger role than previously thought in producing rain and snow. They have also been found in the cores of hailstones. Palmer, Jason (25 May 2011). "Bacteria-rich hailstones add to 'bioprecipitation' idea". BBC News

*P. syringae* can cause water to freeze at temperatures as high as \(-1.8 \, ^\circ\mathrm{C}\) (\(28.8 \, ^\circ\mathrm{F}\)), but ice nucleation at lower temperatures (down to \(-8\, ^\circ\mathrm{C}\)) are more common. The freezing causes injuries and makes the nutrients in the underlying plant tissues available to the bacteria.
Pseudomonas syringae – the rain-making bacteria

*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 flowers and foliage – how blessed are we if we are able to go for it and do not have to worry about allergies. The smell of plants is pure delight but for us pros also a crucial feature to identify plant families, genera and species. Which are the three families with the most fragrant plants? ………………………….   …………………………….  …… Today we will enjoy this feature of plants not only as an aspect of plant identification but one step further ahead as an attempt to name not only the identity of the plants but also the identity of the plant fragrances. This direction provides a true enrichment of your approach to plants and a satisfying experience of their best nature.

A. We will first visit the courtyard next to the library. There we find the Mexican orange *Choisya ternata* in the Citrus or rue family (Rutaceae).

First, smell the flowers having a ………………………………….. scent that attracts bees as pollinators.

Second, smell the foliage after squishing it slightly with your finger.

The arising smell is best described as …………………………………………………………………………

Does this plant fit Kerner's rule or is it an exception to it?
…………………..

B. We will next visit the Bastyr Garden.

There we find the lemon balm or *Melissa officinalis* which is not in the Citrus or rue family (Rutaceae) but in the …………………….. family.

The smell of the foliage is …………………………………………………………………………………
The taste of coffee, cherries and garlic! Who could forget it? However, these three things are not recognized by our taste receptors but exclusively by our olfactory sense of smell. You do not believe it? Test it out!

(A) We will prepare four paper cups with a bag of (a) black tea, (b) peppermint tea, (c) coffee & (d) nothing (plain warm water) and fill them with hot water from the dispenser in the Bastyr hallway. Now we will choose a test person, who has to close her eyes and wear a nose clip to eliminate the sense of smell. Hand the test person the cup (she cannot see!) and let her sample it. Take the cup from her hands and put it down on a sheet of paper together with her answer.

black tea   peppermint   coffee   warm water

  test 1 ID-ied as
  test 2 ID-ied as

(B) We will dice raw (a) cherries, (b) garlic, (c) apples and (d) onion. We repeat the exercise while feeding the test person a small spoonful of the samples.

cherries   garlic   apples   onion

  test 1 ID-ied as
  test 2 ID-ied as
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!
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(1) Observation with colored glasses.

Colored glasses are essentially pigmented filters that eliminate some colors and pass others. This will change your perception of the color that is really there.

It also follows that an object that appears blue to us absorbs yellow to red. Both concepts are easily tested. Now experience them as well.
1) Chose one color glasses .......... and look at a color circle on the right. Note how the colors change:
green ➔ ..........., blue ➔ .................
red ➔ ............ yellow ➔ .................
white ➔ ..................
The Art of Pitching

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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
95%

How
5%
How to make a talk that is short and impressive?

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