



GOLDEN BEAR CPHS SUMMER CAMP

• **WESTERN NEW ENGLAND UNIVERSITY** •

**College of Pharmacy and
Health Sciences**

June 23–27, 2025

8:30 a.m.–4:30 p.m.

**Thank You to Our Sponsors:
Massachusetts Health Council**

Welcome to the Western New England University College of Pharmacy and Health Sciences Golden Bear Summer Camp! I hope you are excited for all the experiences that this fun-filled five-day camp has to offer. By the end of the week, you will learn about different career paths in the field of healthcare and perform many hands-on activities with our distinguished faculty. Throughout the camp, current graduate students in our college will be available for assistance and to discuss their experiences.

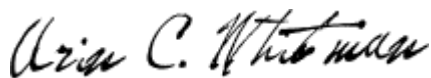
I ask that you arrive on time so we can start promptly every day. Please also be sure to attend all days to receive the certificate signed by Dean Pezzuto on the last day of camp. Many of the activities will require participation and engagement. Come excited to learn! The most important thing, besides safety of course, is to have fun. Faculty will provide instructions throughout lectures, discussions, and hands-on activities. If you should need any learning or physical accommodations, please contact me in advance.

In this manual, you will find safety guidelines that must be followed throughout the camp. No bullying or disrespect towards other students, faculty, or staff will be tolerated. For all activities to run smoothly, all students in attendance will need to abide by the rules. The success of the activities can only be ensured if students follow directions and are actively engaged in the sessions.

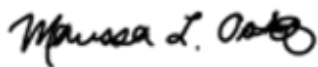
If at any point you have questions during activities, please feel free to ask! We want you to have an enjoyable and safe experience.

Please do not hesitate to contact me with questions or concerns.

Looking forward to meeting all of you!



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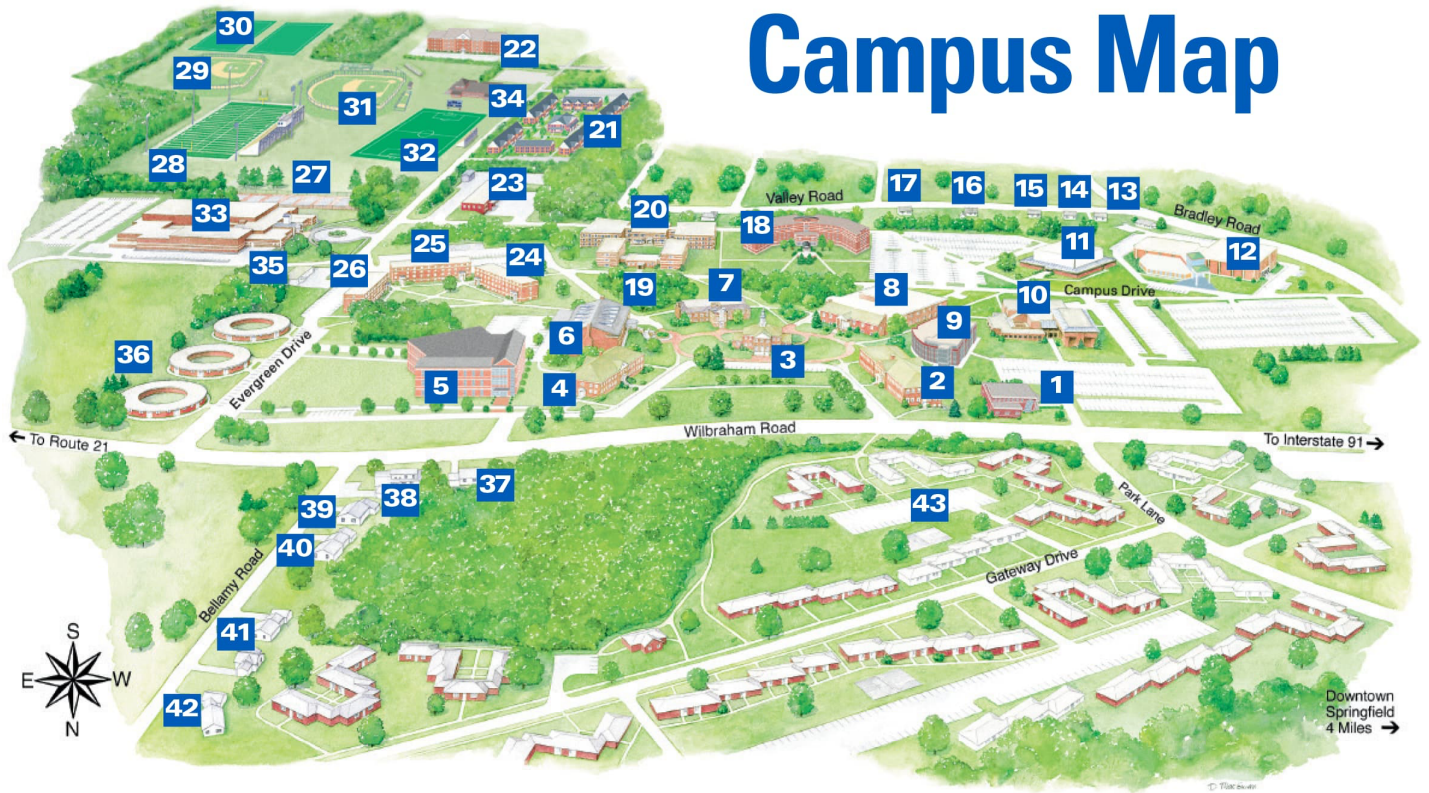


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Table of Contents

Campus Map	4
Camp Schedule	5
General Policies and Procedures	6
Safety in the Laboratory	
Safety Guidelines	7
Safety Equipment	8
Laboratory Protocols	
Microbial Lab: Putting Disinfectants to the Test	9
Introduction to Compounding	13
➤ Basic Lip Balm Recipe	14
➤ Hand Sanitizer Recipe	14
Genetics and Pharmacy: What's the Connection	
➤ Bitter Taste Test	15
➤ Strawberry DNA extraction	17
Chromatography of M&M Candies	19
Clinical Skills	22
Pharmacy Law and Ethics Information	28
Vision Board	32
Additional Information	33
Careers in Pharmacy	
Admissions Information	
References	41

Campus Map



Important Places to Know

- 5 – Center for Sciences and Pharmacy
- 8 – Campus Center
- 11 – Blake

Schedule

MHC WNE Golden Bear & Jr. Golden Bear Summer Camp

Co-Directors: Dr. Whitman-Jemison & Dr. Ostroff

Admin: Tiara Warren

	Monday		Tuesday		Wednesday		Thursday	Friday
	Golden Bears Group #1 (High School)	Jr. Golden Bears Group #2 (Middle School)	Golden Bears Group #1 (High School)	Jr. Golden Bears Group #2 (Middle School)	Golden Bears Group #1 (High School)	Jr. Golden Bears Group #2 (Middle School)	All Together!	All Together!
Topic	Neuroscience/ The Great Health Relay	Pharmacogenomics Sterile Comp.	Pharmacogenomics Pharmaceutics Med. Chem. Law/Ethics	Neuroscience /Pharmacy/ The Great Health Relay	Pharmacy (Clinical)	Big Y Pharmacy Experience	Occupational Therapy	College Prep
Faculty	Dr. Jarvinen Dr. Tershner	Dr. Kinney Dr. Anderson Dr. Housman Dr. Yang	Dr. Baker Dr. Ghoneim Dr. Gilzad-Kohan Dr. Kinney Dr. Anderson	Dr. Jarvinen Dr. Tershner Dr. Mattison	Group A Dr. Doyle-Campbell, Dr. Mattison, Group B Dr. Anderson, Dr. Housman/Dr. Yang	Dr. Capoccia and Residents	Dr. Adams Dr. Defilipi Admissions Team	Dr. Ekong
Lab Coordinator	Ms. Kofsky	Ms. Warren	Ms. Warren	Ms. Kofsky	Ms. Warren	Ms. Warren	-	-
8:30-8:50am	Arrival		Arrival		Arrival		Arrival	Arrival
8:50-9:00am	Daily Overview		Daily Overview		Daily Overview		Daily Overview	Daily Overview
9-10:00am	Professional Etiquette Topic		PGx and DNA extraction Med Chem and TLC	Professional Etiquette Topic	Group A Community to Ambulatory Care Pharmacy Case (Diabetes) Group B EMT to Hospital Pharmacy Case (Infectious Disease)	WNE Consultation and Wellness Center @ Big Y 300 Cooley Street, Springfield, MA 01128	Occupational Therapy	College Prep Lecture
10: 11:00am	Neuroscience	Laboratory Skills Pharmacogenomics		Neuroscience				Vision Board
11-12:00pm								Pharmacy Games
12-1:00pm	LUNCH		LUNCH		LUNCH		LUNCH	LUNCH
1-2:00pm	Drugs of Abuse Lecture	Laboratory Skills Pharmacogenomics	Compounding	Mock Pharmacy	Group A EMT to Hospital Pharmacy Case (Infectious Disease) Group B Community to Ambulatory Care Pharmacy Case (Diabetes)	WNE Consultation and Wellness Center @ Big Y 300 Cooley Street, Springfield, MA 01128	Campus Tour	Pharmacy Games
2-3:00pm	The Great Health Relay	Sterile Lab	Compounding	The Great Health Relay			Admissions Overview	The Great Health Relay (Final Competition and Prizes)
3-4:00pm			Law/Ethics				Medicinal Garden	
4-4:30pm	Dismissal		Dismissal		Dismissal		Dismissal	Dismissal

General Policies and Procedures

1. Exercise good judgement.
2. Do not leave the building without notifying a group leader or faculty member.
3. Follow the safety instructions provided by the group leader or faculty member.
4. Be aware of where the exits, fire extinguisher, and first aid supplies are located in the room.
5. Avoid leaving the work area when in the middle of an experiment.
6. Organize and clean workbenches after finishing the experiment.
7. NO eating or drinking in laboratory setting (Lab room and SIM man room).
8. Footwear must be clean and in good condition. Closed footwear must be worn in laboratories; open-toed shoes and bare feet are not acceptable nor permitted in the laboratory settings.
9. Communicate positively and constructively with your groups and instructors.
10. Participate in team activities and do your share of the work.
11. Let an instructor or group leader know immediately if you are having difficulties.
12. To ensure that an environment conducive to teaching and learning is established, the University expects that individuals within its walls will treat each other with courtesy and respect.
13. When differences arise, these should be resolved in a civil manner, please contact a faculty member if you need assistance.
14. Disruptive behavior, such as talking between students, leaving class while in session, ringing cell phones or texting on phones, as well as disrespectful, hostile, abusive and/or threatening behavior or language will not be tolerated.

Learners are expected to be on time for the sessions. If late, a learner shall enter from the rear of the room quietly, without creating a distraction.

Safety Guidelines

1. Leave all personal items (coats, non-essential books, etc.) in an unused portion of the laboratory.
2. Long hair, loose jewelry, and loose/baggy clothing should be secured.
3. **CLOSED TOED SHOES AND LONG PANTS** are required. Tank tops, shorts, and skirts are not allowed.
4. **Eating, drinking, or smoking is not allowed.** No food or beverages are allowed to be brought into the laboratory.
5. Be sure to wash hands when entering and leaving the laboratory.
6. At the beginning and end of each laboratory session, wipe bench tops with a disinfectant solution.
7. Keep your workspace clean at all times.
8. **NEVER** pipette by mouth.
9. Never remove equipment or reference materials from the laboratory.
10. Notify group leader or faculty member of broken glassware for proper disposal.
11. Speak quietly and avoid unnecessary movement around the laboratory to prevent distractions that may cause accidents.
12. No running in the laboratory.
13. On completion of the laboratory session, place all materials in the designated disposal areas.
14. Always wear safety glasses with side shields in the laboratory when chemicals are present or actively being used. Safety glasses must be worn over prescription eyeglasses.
15. Contact an instructor before leaving the laboratory.
16. **ALL ACCIDENTS IN THE LABORATORY MUST BE IMMEDIATELY REPORTED TO THE INSTRUCTOR.**

The specific precautions outlined above **MUST** be observed at all times when in the laboratory.

By signing this document, I confirm I have read and understand the laboratory safety principles summarized on this page and I recognize my responsibility to abide by these principles while in the lab.

Date: _____

Printed Name: _____

Signature: _____

Safety Equipment

Eye Protection



Eye/Face Wash Station



First Aid Kit

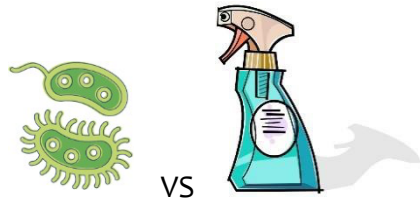


Emergency Shower



Laboratory Protocols

Putting Disinfectants to the Test



Description

This lab exercise shows that bacteria are found all around us and compares the effectiveness of common household disinfectants against common bacterial species.

Additional Safety in a Microbial Laboratory

1. Please review Safety Guidelines on page 3 for basic safety protocols while in a lab.
2. **Most important:** Do not touch or ingest the bacteria.
3. At the end of lab, disinfect the lab bench with 0.525% sodium hypochlorite solution (bleach).
4. If a spill occurs please report to the instructor for proper disinfection.
5. **WASH YOUR HANDS! WASH YOUR HANDS! WASH YOUR HANDS!**
 1. Wash hands thoroughly with soap before leaving the laboratory or touching hair, face, food, drink, or cell phone.

Background

- Microbes are everywhere!
 - Types of Microbes/Bacteria we will be working with:
 - **Escherichia coli (E. coli)** - Gram negative bacteria
 - A common bacteria found in the intestines.
 - **Staphylococcus epidermidis** - Gram positive Bacteria
 - A common bacteria found on the skin.
- Culture media lets you sample and test an environment; bacteria are transferred from a sample surface to the petri dish and are allowed to grow and from colonies to be further examined.
- There are many different kinds of microorganisms that may grow, including potentially harmful bacteria and fungi.
- The appearance of a colony can help distinguish what type of organism is/was present. The difference in cell structure helps cells survive in different environment.
- Different disinfectants work by attacking these certain parts of different cell

structures such as:

- Sodium hypochlorite (bleach): destroys bacterial protein
- Vinegar (acetic acid): damages proteins and lipids
- Lysol (benzalkonium chloride/quaternary ammonium compounds): binds to and destroys cell membranes

Part A: Testing the Effectiveness of Disinfectants in Killing Bacteria

Supplies:

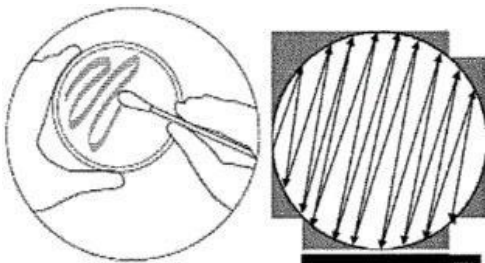
- Tube of bacteria grown overnight (*Staphylococcus epidermidis* or *Escherichia coli*)
- Gloves (optional)
- Sterile swab
- Mueller-Hinton agar plate
- China or Sharpie marker (to label)
- Forceps
- Sterile paper discs pre-soaked in a beaker with disinfectant
 - Examples of disinfectants includes: 0.525% Sodium Hypochlorite (Bleach), Vinegar, Tea tree oil, 3% Hydrogen Peroxide, and other cleaning products (Lysol, Formula 409, Green works)
- Paper towel (to collect drips from discs)

Procedure

Day 1:

Instructor will demonstrate aseptic technique first.

1. Label the back of the petri plate with your name and the bacteria to be tested. Draw lines to **divide the plate into 4 sections** and label each section with the disinfectant to be tested.
2. Dip the swab into the tube of bacteria, then streak the swab in a **zig-zag motion** across the plate as demonstrated in the picture below to cover it with bacterial cells. Repeat this in different directions two additional times (for a total of three times across the plate).



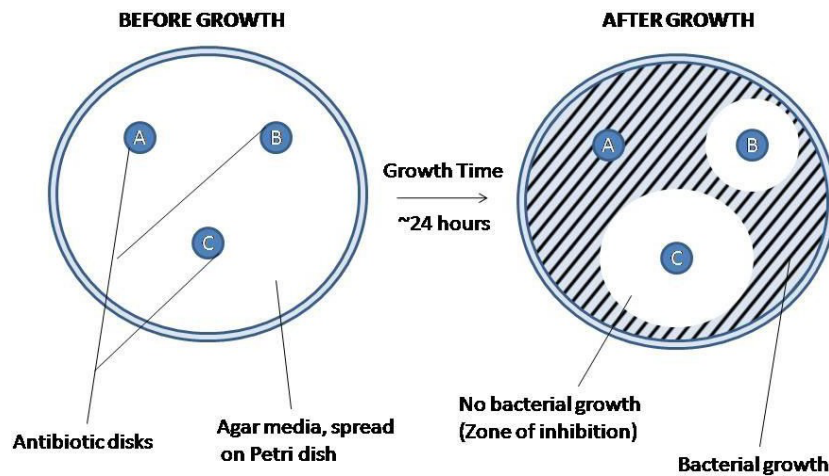
3. Use forceps to lift a paper disc that has been soaked in disinfectant, touch the disc to

the paper towel to **remove any excess liquid**, and then place the disc flat on the petri plate in the correctly labeled section.

4. Incubate the petri plate overnight at 37°C (98.6 °F)

Day 2:

1. Return and find your petri plate to examine.
2. Use a ruler to **measure the “zones of inhibition”** or clearing where bacteria were inhibited by the chemical.



3. Measure the zone of inhibition in **millimeters** and record in the table below.
4. Collect class results and compare the effectiveness of the different disinfectants on the two types of bacteria.

Type of Disinfectant	Escherichia coli (Gram negative bacteria)	Staphylococcus epidermidis (Gram positive bacteria)
Clorox (0.525% NaOCl)		
Lysol All-Purpose Cleaner		
Windex Disinfectant		
Green Works Cleaner		
3% Hydrogen Peroxide		
Tea Tree Oil		
Vinegar (5% acetic acid)		

Part B: Sampling an Environment Before and After Disinfectant

Supplies:

- 2 RODAC tryptic soy agar (TSA) plates (for surface sampling, marked with a grid)
- China or Sharpie marker to label
- Disinfectant or cleaning product
- Sampling surface (can sample benchtop or desktop if available)

Procedure

Day 1:

1. Label RODAC plates with name, where sampled, and “Before” and “After”
2. Press “Before” plate firmly against sampling surface, hold for several seconds, remove, and place cap on.
3. Disinfect the surface with a cleaning product and paper towels.
4. Wait 5 - 10 minutes
5. Repeat sampling with the “After” plate, such as in step 2.
6. Incubate plates overnight at 37°C (98.6 °F).

Day 2:

1. Return and find your RODAC plate to examine. ***DO NOT OPEN!***
2. Count the total number of colonies and estimate the number of colony-forming units (CFU)per cm²

Surface Sampled:_____ Disinfectant Used:_____

CFU/ cm² BEFORE:_____ # CFU/ cm² AFTER: _____

3. Record the number of different colony morphologies/types: _____
4. Compare class results for colony counts and effectiveness of the cleaning products

Introduction to Compounding

What is compounding?

The art and science of preparing individualized medications for patients that contain specific ingredients that are to be mixed together in the exact strength and dosage that is required and prescribed by a doctor.

Reading a Prescription

The image shows a sample prescription form with various fields labeled for identification. The form contains handwritten information for a patient named Dan D. Lyon and a prescriber named Jacquelyn Hyde, MD. The ingredients listed are Acetaminophen 325 mg, Alcohol USP 15 ml, and Cherry Syrup q.s. 90 ml. The form also includes fields for phone numbers, DEA registration number, date, and instructions for use and refills.

Prescriber information: Jacquelyn Hyde, MD
123 Upendown Rd.
Nowhere, NC 27000
Phone: 555-1234
DEA# AH0079411

Name and address of patient: NAME: Dan D. Lyon
ADDRESS: 123 Jackla Lane
PHONE: 555-5678

Drug Enforcement Agency (DEA) registration number of prescriber: DEA# AH0079411

Date: 2/18/08

Inscription: R: Acetaminophen 325 mg
Alcohol USP 15 ml
Cherry Syrup q.s. 90 ml

Signature: SIG: 1/2 tsp. q4-6h prn

Refill instructions: REFILLS: 1

DAW: PRODUCT SELECTION PERMITTED

Signature of prescriber: Jacquelyn Hyde
DISPENSE AS WRITTEN

Important Steps for Preparing a Compound

- Read over the prescription and make sure it makes sense.
- Calculate the amount of ingredients you need.
- Collect all of your ingredients and supplies.
- Determine the order of how you will make your compound.
- Make sure your final product looks like it should.
- Package the compound in an appropriate container.
- Put on appropriate labels with patient information as well as extra warnings for the patient (such as 'shake well' or 'keep refrigerated').

Basic Lip Balm

Ingredients:

- 5 g (1 teaspoon) Beeswax
- 10 g (2 teaspoons) Coconut Oil
- 5 drops Vitamin E Oil (30,000 IU)
- Two ½ ounce jars



Instructions:

1. Melt the beeswax and coconut oil in a 50 mL beaker
2. Once melted, add 5 drops of Vitamin E oil
3. Let it cool down to room temperature
4. Add a flavor such as cherry or peppermint oil
5. Place in two ½ ounce jars and let it cool further
6. Use on your lips several times a day!

Hand Sanitizer

Ingredients:

- 50 mL (1.5 ounces) Alcohol, Isopropyl 70%
- 2.5 mL (1/2 teaspoon) Glycerin
- 2.5 mL (1/2 teaspoon) Aloe Vera Juice
- 10 drops Orange Essential Oil
- 1 Spray Bottle (2 ounces)

Instructions:

Mix all the above ingredients and transfer the mixture to a spray bottle. Use to sanitize hands when needed.



Genetics and Pharmacy: What's the Connection?

A person's genes can affect how one responds to the use of drugs.

Bitter Taste Test



****PLEASE NOTE:** If you have a **concern** about a **possible allergic reaction** to one of the chemicals used in the test strips, please **contact the instructor** and do not perform the activity.**

Background:

In humans, and many other species, certain chemicals in food stimulate taste cells on our tongue, which in turn send messages to a specific region of our brain. Your brain then interprets what these messages mean and determines the appropriate response (continue chewing OR spit it out). Chemoreceptors are a type of protein found in taste cells that detect the specific chemicals in our food. In humans, there are five different classes of these chemoreceptors: sour, salty, sweet, umami, and bitter. All 5 categories of receptors are found somewhere on the tongue. It was proven that there is only one type of receptor for sweet, sour, and umami but at least 30 different receptors for bitter explaining why individuals perceive foods differently.

One such bitter receptor is encoded by the gene TAS2R38. There are several known alleles (different forms) for the TAS2R38 gene, but 2 of these are most frequent in the human population outside of Africa. Considering that each person has two copies of any given gene, there are three phenotypes that are generally expressed. These include those who perceive PTC as extremely bitter, those who perceive it as bitter, and those who do not find PTC bitter. Generally, students who find PTC paper very bitter are considered tasters, while students who don't taste anything are considered non-tasters.

One study found people who can taste PTC are more likely to be non-smokers and to not be in the habit of drinking coffee or tea. People who are super-tasters are more likely to find green vegetables bitter. You will now determine if you have at least one copy of the allele that codes for a receptor that perceives PTC as bitter.

Materials:

- PTC (phenylthiocarbamide) taste test paper

Instructions:

- Remove a strip of PTC taste test paper from the vial
- Stick out your tongue, and place the strip on your tongue
- There are 2 basic results – taster or non-taster

Cross Between Heterozygous Parents

1/4 offspring in
this cross will be
super tasters

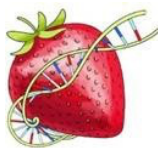
Father

Mother

	T	+
T	TT	T+
+	T+	++

T = Taster
+ = Non-Taster

1/4 offspring in
this cross will not
taste PTC



How to Extract DNA from a Strawberry

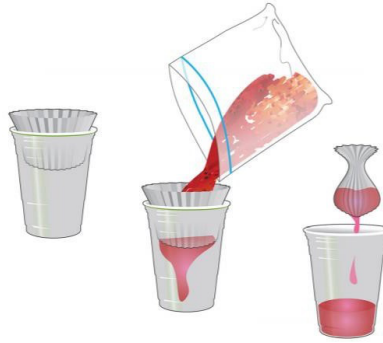
Supplies:

Form groups of 5 for the following activity

- 1 Re-sealable plastic bag
- 2 Strawberries (fresh or frozen)
- 2 teaspoons Dish detergent
- $\frac{1}{2}$ cup Water
- 1 teaspoon salt
- 2 Plastic cups
- 1 Coffee filter
- $\frac{1}{2}$ cup COLD Rubbing Alcohol
- 1 Coffee Stirrer

Procedure:

1. Pull off any green leaves on the strawberry that have not been removed yet
2. Put the strawberries into the plastic bag, seal it and gently smash it for about 2 minutes. Completely crush the strawberries. This starts to break open the cells and release the DNA.
3. In a plastic cup, make your DNA extraction liquid: mix together 2 teaspoons of detergent, 1 teaspoon of salt, and $\frac{1}{2}$ cup of water.
4. Add 2 teaspoons of the DNA extraction liquid into the bag with the smashed strawberries. This will further break open the cells.
5. Reseal the bag and gently smash for another minute (avoid making too many soap bubbles).
6. Place the coffee filter inside the other plastic cup
7. Open the bag and pour the strawberry liquid into the filter. You can twist the filter just above the liquid and gently squeeze the remaining liquid into the cup.

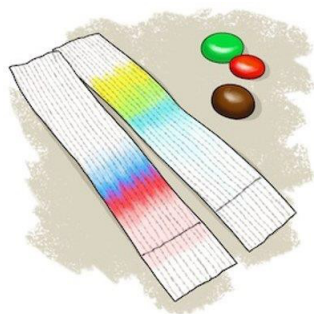


8. Next, pour down the side of the cup an equal amount of cold rubbing alcohol, as there is strawberry liquid. Do not mix or stir. You have just isolated the DNA from the rest of the material contained in the cells of the strawberry.
9. Within a few seconds, watch for the development of a white cloudy substance (DNA) in the top layer above the strawberry extract layer.
10. Tilt the cup and pick up the DNA using a plastic coffee stirrer or wooden stick and divide the DNA into 2 test tubes.



11. Take one portion of your DNA (~200mL), put it into a 1.5mL microcentrifuge tube, and perform an assigned manipulation. Take another portion of your DNA to keep as an unmanipulated control sample. Instructors will help your group to do one of the following:
 - a. Sonication: Using high intensity sound waves to break apart DNA into smaller fragments.
 - b. Freezing and Thawing: Causes strain on the DNA leading to breaks.
 - c. Boiling: The hydrogen bonds holding the two strands of DNA together will break and the strands will separate.

Chromatography of M&M Candies



BACKGROUND

What is chromatography? A stationary phase usually a solid, thick liquid, or bonded coating that stays fixed in one place, and a mobile phase or eluent (usually a liquid or gas) that moves through it or across it.

The chromatography technique that you will be using in this experiment is *paper chromatography*.

What is paper chromatography? A technique for separating dissolved chemical substances by taking advantage of their different rates of migration across sheets of paper.

You will be testing the colors of the M&Ms, referring to the FD&C Dyes.

What is FD&C Dyes? FD&C stands for Food, Drugs & Cosmetics, which represents the colors that are FDA approved for use in foods, drugs and cosmetics.

PURPOSE

Establish the chromatographic behavior of the red, blue, and yellow food dyes that are used to color M&M candies using paper chromatography. Then establish whether these dyes or others are used to create the other colored M&Ms candies such as orange, green, brown, etc.

INTRODUCTION

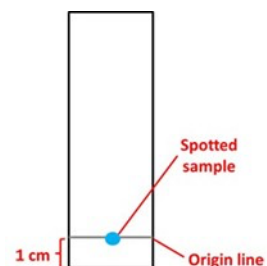
FD&C Dyes yellow #5, red #40, and blue #1 are approved by the FDA for use in a wide variety of food and medicine. These three dyes are used to color the yellow, red, and blue M&Ms.

However, M&Ms also come in other colors such as green, brown, and orange.

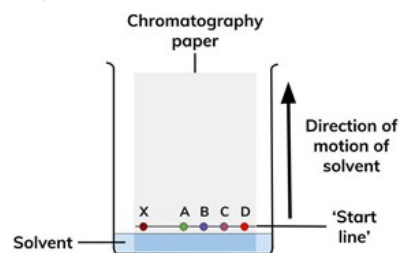
Chromatographic analysis of the dyes present in the various colored M&M candies will answer these questions.

PROCEDURE

1. Obtain a piece of chromatography paper (7 x 11 cm) and measure 1 cm from the bottom of the 'short' side. Draw a straight line across using a ruler and a pencil.
2. Along your pencil line, make five small equally spaced pencil marks.
3. Add M&M candies to small test tubes (one per tube) – be sure to use a red, a blue, and a yellow M&M in addition to two other colored candies (5 tubes total). Add 1-2 drops of water to each tube.
4. Dip a toothpick into the first colored solution and apply a drop of the dye solution to one of the marks on your chromatography paper. Be sure to make a SMALL dot (as small as possible). Dip a clean toothpick into the second colored solution and repeat as indicated above applying this second sample to the second mark on the paper. Using a clean toothpick each time, repeat this procedure with the remaining three M&M dye solutions. When you have finished your first round of 'spotting' you should have 5 separate spots on your pencil line. Allow the spots to dry (wave the paper gently to speed up the drying) and then apply a second drop of each of the SAME solutions to their SAME spots on the paper. Dry the spots thoroughly and then repeat spotting the samples for a third time. Dry the spots thoroughly. When you have finished your spotting, you should have 5 small highly colored spots on your pencil line.
5. Prepare your chromatography development chamber by adding approximately 30 mL of water to an empty beaker.
6. Carefully clamp the chromatography paper strip onto a glass stirring rod using the provided clamp.



7. Place the paper into the chamber laying the attached stirring rod across the top of the beaker to support the paper.
NOTE: THE BOTTOM AND SIDES OF PAPER SHOULD NOT TOUCH THE BEAKER AND THE SAMPLE SPOTS MUST BE ABOVE THE LEVEL OF THE DEVELOPING SOLVENT.



8. Allow the chromatogram to develop until the solvent has traveled to about 2-3 cm from the top of the chromatography strip. Remove the paper and using a pencil, draw a line across the paper to mark the distance traveled

by the solvent.

9. Outline all of the spots in pencil and record the observed spot colors. Note the position of yellow #1 (from the yellow M&M), red #40 (red M&M), and blue #1 (blue M&M). Inspect the chromatogram lanes of the other M&Ms and note if the positions of any yellow, red, or blue spots correspond to those of the standards (red, yellow, and/or blue).
10. Record your observations below. Indicate with a 'YES' or a 'NO' as to whether you could confirm the presence of yellow #5, red #40, and/or blue #1 in the candy samples. If other spots (other dyes) are present indicate their colors and in which colored candies they were detected.

M&M CANDY ANALYSIS DATA SHEET

M&M COLOR	YELLOW#1	RED #40	BLUE #1	OTHER DYES?
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ADDITIONAL COMMENTS / OBSERVATIONS:



Clinical Skills Instructions

GET A CLUE!

Gain confidence

Evaluate and assess

Try to be verbal

Apply knowledge

Clinical skills and thinking

Laboratory Value assessment

Utilize all resources

Exert yourself through participation

Addressing and Assessing your Patient!

Sometimes it may be hard to find out why your patient is experiencing discomfort and it may be difficult for them to explain everything that's going on so following these quick steps can help to paint a full picture of the patient's illness: QUEST SCHOLAR-MAC

Quickly and Accurately Assess the Patient

Establish that the patient is an appropriate self-care candidate

Suggest appropriate self-care strategies

Talk with the patient

Symptoms:

What are the main symptoms of the problem?

Characteristics

What are the symptoms of the problem like?

History

What have you done so far to treat the problem? Has this problem happened before?

Onset

When did this particular problem start?

Location

Where are you feeling this problem?

Aggravating factors:

What makes the problem worse?

Remitting factors:

What makes this problem better?

Medications:

Is the patient taking any prescription and non-prescription medications?

Allergies:

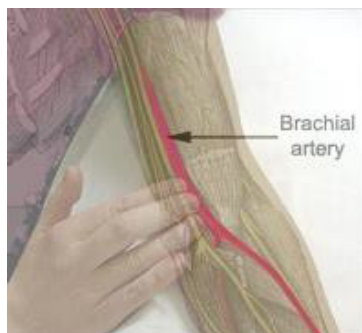
Is the patient allergic to any medications and if so what kind of reaction do they have when they take it?

Conditions: Does the patient have any other medical conditions?

Steps for Taking Blood Pressure in Adults



1. The patient should be seated with his/her arm bared, supported on a smooth surface and positioned at heart level. The patient should be relaxed and should not have smoked or ingested caffeine within 30 minutes prior to measurement. The measurement should begin after the patient has been at rest for 5 minutes.
2. Locate the brachial artery along the upper inner arm by feeling for the brachial pulse.



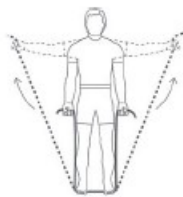
3. Measure the arm circumference and select the appropriate cuff size. Wrap the deflated cuff around the upper arm with the arrow on the cuff pointing to the area where the brachial pulse was felt.
4. Determine the level for maximal inflation by observing the pressure at which the radial pulse is no longer felt as the cuff is rapidly inflated and add 30 mm Hg. Then rapidly and steadily deflate the cuff. Wait at least 15 – 30 seconds before re-inflating.
5. Position the head of the stethoscope over the brachial artery below the cuff. The stethoscope should be applied with light pressure, ensuring skin contact at all points. Use of the bell head may enhance sound detection.
6. Rapidly and steadily inflate the cuff
7. Release the air in the cuff so that the pressure falls at a rate of 2 to 3 mm per second.

Listen and note the systolic pressure at the onset of at least two consecutive beats. Blood pressure levels should be recorded in even numbers and read to the nearest 2 mm Hg mark on the manometer.

8. Listen and note the diastolic pressure at the point you can no longer hear the sounds of beating. Listen for 10 to 20 mm Hg below the last sound heard to confirm disappearance. Then, deflate the cuff and remove it from the patient's arm completely.

9. Announce/record the blood pressure reading.

 Instruction Manual



Lateral Raise

- Stand on elastic.
- Hold elastic in both hands.
- Begin with arms at sides.
- Position palms forward.
- Keep elbows straight and lift arms to shoulder level.
- Slowly lower and repeat.

Front Raise*

- Secure elastic at waist level as shown.
- Grasp elastic and pull arm backwards keeping elbow straight.
- Slowly return to start position.



Overhead Press*

- Stand on elastic.
- Grasp elastic in hands, arms at side, elbows bent, as shown.
- Push arms up and overhead.
- Slowly return to start position and repeat.

Shoulder Diagonal D1 Flexion*

- Secure elastic to secure object at floor level.
- Sit or stand, arm at side.
- Grasp elastic in hand, palm forward.
- Lift arm upward and across body to opposite shoulder, bending elbow, ending with palm inward.
- Slowly return to start position and repeat.



**Caution: User must wear suitable eye protection such as safety goggles during this exercise to protect against possibility of eye injury as a result of the band or tube snapping towards the face if grip is lost or if the band or tube breaks.*

18

 Instruction Manual

Shoulder Diagonal D2 Flexion*

- Attach elastic to secure object at floor level.
- Begin with arm crossed over trunk, holding elastic, palm inward, at opposite hip.
- Raise arm up and diagonally across, ending with palm facing forward.
- Slowly return to start position and repeat.



Shoulder Diagonal D1 Extension*

- Attach elastic to secure object as shown.
- Grasp elastic with hand at opposite shoulder, palm inward.
- Pull arm down and across body, ending in palm outward.
- Slowly return to start position and repeat.

Shoulder Diagonal D2 Extension*

- Attach elastic to secure object above head level.
- Begin with arm up and out from side as shown.
- Grasp elastic, palm forward and pull down and across.
- End with hand at opposite hip, palm inward.
- Slowly return to start position and repeat.



**Caution: User must wear suitable eye protection such as safety goggles during this exercise to protect against possibility of eye injury as a result of the band or tube snapping towards the face if grip is lost or if the band or tube breaks.*

19

Thera-Putty Exercises

Repeat these exercises	times for	times a day.
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These exercises will strengthen the muscles of your fingers, hand and forearm.

Finger Hook

Make a hook with your fingers as you press into the putty.



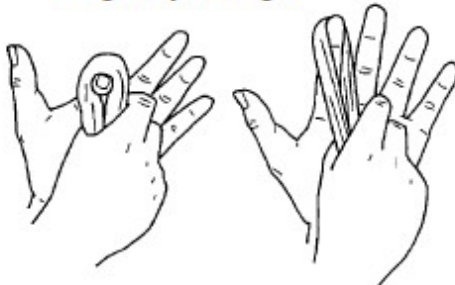
Full Grip

Squeeze your fingers into the putty like your are making a fist.



Finger Extension

Loop the putty over the end of the finger while it is bent. Try to straighten your finger.



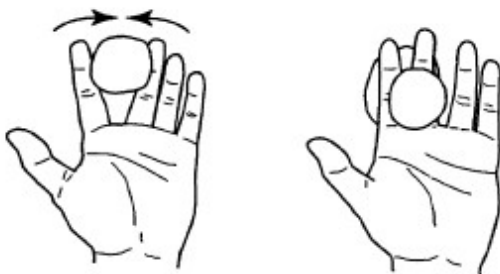
Finger Spread

Spread the putty like a pancake over your fingers and thumb. Try to spread them apart.



Finger Scissor

Place a 1 inch thick piece of putty between each pair of fingers and squeeze together.



Finger Pinch

Pinch the putty between each finger and the thumb.

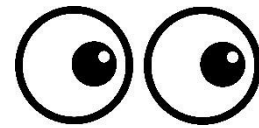


Let's Make A Snake!



Step 1: Roll your putty into a loooooooooong snake body

Step 2: Rip a small section off the back of the snake's body and roll in into small balls



Step 3: Place them on the snake's head for eyes

Step 4: Rip another small section off and roll it into a small, thin piece

Step 5: Place it near the snake's mouth for a tongue



Step 6: Pinch along the snake's body to add scales

You Did It!



Pharmacy Law and Ethics

The Role of Law in Pharmacy

- Pharmacy is a unique health care profession in that it is the most heavily regulated by both the federal and state governments in the U.S.
- Because of this, pharmacy is the only health care profession where 1/3 of the licensing examination (actually a separate test, called the MPJE) is about pharmacy law.

Why is there “law”?

- What is the purpose of “law”?
 - To provide a framework for life.
- General definition of law:
 - Provides requirements for human conduct that apply to all persons within a specific jurisdiction.

Upon what is law based?

- Factors legislatures use, courts apply, or executives use in reaching decisions (“making law”):
 - Fundamental notions of fairness
 - History involved, i.e. norms or customs.
 - Politics or power
 - Best balance between conflicting societal interests

So, why study Pharmacy Ethics?

- One’s **personal ethics** are essential to one’s own well-being and should be prepared for any situation.
- Be aware that it is the culmination of everyone’s individual ethics that make up the morals of a society.
- Still, a society’s morals are typically several decades ahead of a society’s laws and regulations.

The 7 Basic Pharmacy Principles

1. Beneficence: The Duty to Do Good
2. Nonmaleficence: The Duty to Avoid Harm
3. Justice: The Allocation of Scarce Health Resources
4. Autonomy: The Patient’s Right to Choose or Decide
5. Veracity: Dealing Honestly with Patients
6. Fidelity: Promise Keeping and Confidentiality
7. Avoidance of Killing

Time for the Pharmacy Law Escape Room Game!

1. Working as a group, you must solve three sets of questions (one set at a time) regarding basic pharmacy law, learning the combination to gain access to the next set.
2. You may use your smartphones or a laptop computer to answer the questions.
3. To “escape from” the Pharmacy Law room, you must solve all three problem sets in the correct order within the allotted amount of time.
4. Good luck! I hope to see you all “on the other side!”



Code of Ethics for Pharmacists 1994

PREAMBLE

Pharmacists are health professionals who assist individuals in making the best use of medications. This Code, prepared and supported by pharmacists, is intended to state publicly the principles that form the fundamental basis of the roles and responsibilities of pharmacists. These principles, based on moral obligations and virtues, are established to guide pharmacists in relationships with patients, health professionals, and society.

I. A pharmacist respects the covenantal relationship between the patient and pharmacist.

Considering the patient-pharmacist relationship as a covenant means that a pharmacist has moral obligations in response to the gift of trust received from society. In return for this gift, a pharmacist promises to help individuals achieve optimum benefit from their medications, to be committed to their welfare, and to maintain their trust.

II. A pharmacist promotes the good of every patient in a caring, compassionate, and confidential manner.

A pharmacist places concern for the well-being of the patient at the center of professional practice. In doing so, a pharmacist considers needs stated by the patient as well as those defined by health science. A pharmacist is dedicated to protecting the dignity of the patient. With a caring attitude and a compassionate spirit, a pharmacist focuses on serving the patient in a private and confidential manner.

III. A pharmacist respects the autonomy and dignity of each patient.

A pharmacist promotes the right of self-determination and recognizes individual self-worth by encouraging patients to participate in decisions about their health. A pharmacist communicates with patients in terms that are understandable. In all cases, a pharmacist respects personal and cultural differences among patients.

IV. A pharmacist acts with honesty and integrity in professional relationships.

A pharmacist has a duty to tell the truth and to act with conviction of conscience. A

pharmacist avoids discriminatory practices, behavior or work conditions that impair professional judgment, and actions that compromise dedication to the best interests of patients.

V. *A pharmacist maintains professional competence.*

A pharmacist has a duty to maintain knowledge and abilities as new medications, devices, and technologies become available and as health information advances.

VI. *A pharmacist respects the values and abilities of colleagues and other health professionals.*

When appropriate, a pharmacist asks for the consultation of colleagues or other health professionals or refers the patient. A pharmacist acknowledges that colleagues and other health professionals may differ in the beliefs and values they apply to the care of the patient.

VII. *A pharmacist serves individual, community, and societal needs.*

The primary obligation of a pharmacist is to individual patients. However, the obligations of a pharmacist may at times extend beyond the individual to the community and society. In these situations, the pharmacist recognizes the responsibilities that accompany these obligations and acts accordingly.

VIII. *A pharmacist seeks justice in the distribution of health resources.*

When health resources are allocated, a pharmacist is fair and equitable, balancing the needs of patients and society.

* Adopted by the membership of the American Pharmacists Association October 27, 1994.¹¹

Creating a Vision Board

We will be providing any necessary items for this vision board

Part 1: WHAT IS A VISION BOARD?

Create a specific idea for your vision board!!! (e.g., What is my dream job? How do I want to help my community? Etc.)

Part 2: HOW TO MAKE/CREATE A VISION BOARD??

How to make a vision board? How to use your vision board to achieve your goals?

Some tips: Think of this board as the DIY idea of making your Pinterest boards (goals for the year, what you manifest in life, etc. This will be a fun way to get to know yourself and create an idea of what your future goals are within Pharmacy!)



Careers in Pharmacy

Career Pathway	Activities from Summer Camp
Community Pharmacist	<ul style="list-style-type: none"> • Fill prescriptions • Counsel patients about medications and proper use • Answer questions from patients and other healthcare providers
Hospital Pharmacist	<ul style="list-style-type: none"> • Can work to compound medications • Makes sure medication orders are verified • Can specialize in different areas: Emergency, Cancer, General Medicine, Pediatrics, etc.
Ambulatory Care Pharmacist	<ul style="list-style-type: none"> • Uses clinical skills needed to evaluate patients in a clinic setting • Takes blood pressure and evaluates results • Can also specialize in different areas: Diabetes, Asthma, Nutrition, etc.
Pharmaceutics	<ul style="list-style-type: none"> • Development of pharmaceutical products <ul style="list-style-type: none"> ○ basic creams ○ lip balms ○ Syrups ○ tablets and capsules • Works for drug companies
Pharmacogenomics and Pharmacogenetics	<ul style="list-style-type: none"> • Perform DNA extractions on Strawberries • Bitter taste test • Studying genes and how drugs impact on the body <ul style="list-style-type: none"> ○ Dominant and recessive genes ○ Some genes can cause drugs to become ineffective

Many other careers in pharmacy exist! These are just a few examples of how the activities you participated in throughout the week translate into the real world.

Admissions Information

WNE o-6 Pharmacy Program (6 years)

Western New England University's Pharmacy program is an ideal place for future pharmacists to excel. Through our o-6 Doctor of Pharmacy (PharmD) program model, qualifying high school seniors applying to the Pharmacy program are guaranteed a seat in our four-year PharmD program, provided they meet academic milestones during their first two years of preprofessional studies. Qualifying students are eligible to receive a [bachelor's degree in Pharmacy Studies](#) after four years of study and the PharmD degree after six years.



Admissions Criteria for the o-6 Pharmacy Program

To be considered for admissions to the o-6 PharmD program, an applicant must:

- SAT \geq 1100 (Math, Critical Reading)
- ACT \geq 24
- Biology, Chemistry, US or American History, 4 years of Math up to Pre-calculus, and 4 years English, Physics also preferred
- AP Credits accepted depending on score and class. 3+ test score on individual basis. 4 or 5 needed to satisfy any science requirements within the program.

Pre-professional Course Requirements

All learners must complete the pre-professional course requirements, earning a grade of 'C-' or higher in each course, at an accredited college or university prior to matriculation into the professional PharmD program at the College of Pharmacy and Health Sciences.

Course	Credit Hours (semester)
Science requirements¹	
General biology with lab	8
Human anatomy and physiology with lab	8
General chemistry with lab	8
Organic chemistry with lab	8
Microbiology with lab	3
Physics with lab	4
Math requirements	
Calculus	3
Statistics	3
Social science requirements	
English composition	6
Economics	3
Psychology	3
Social science elective ² OR public/population-based health	3
Total	60

¹ Science Courses must be designated for science majors

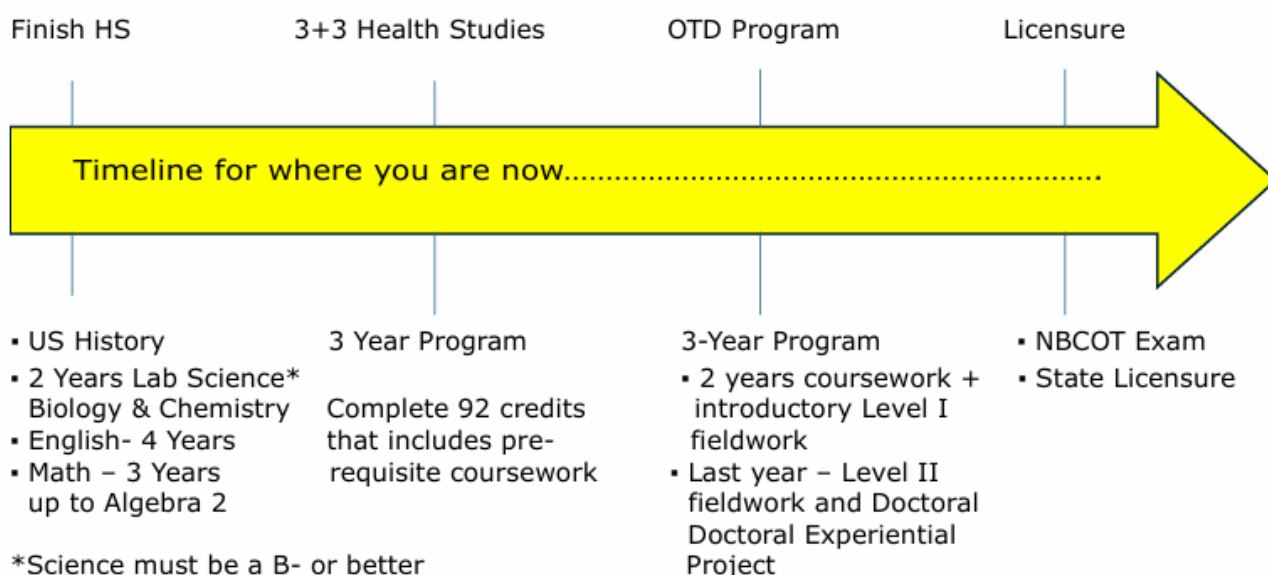
² May be satisfied with a course in history, sociology, political science, or law and society

3 + 3 Health Studies, Neuroscience, or Psychology- Doctor of Occupational Therapy Program

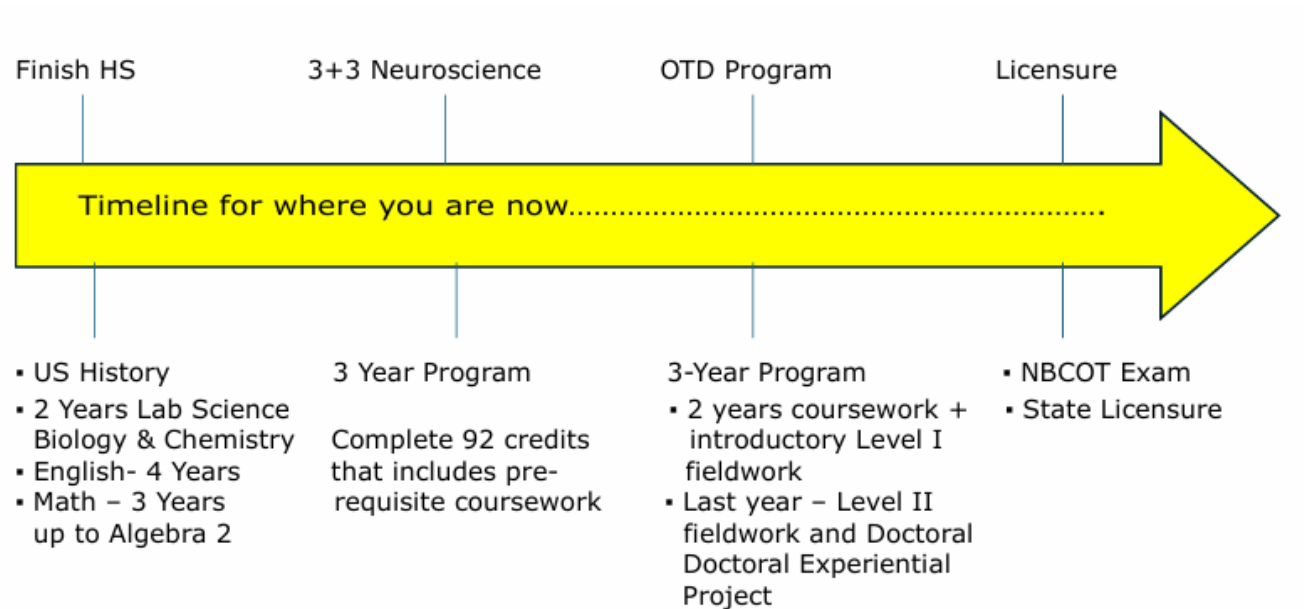
Two degrees of preparation—in just six years, not seven. That’s the advantage of earning a joint BS or BA and OTD degree at Western New England. Save time and tuition and be positioned to earn the salary afforded those among the highest degree in the field.

First-year students commit to this early-admissions program and spend their first three years in at WNE working towards completing their bachelor’s degree while focusing on prerequisite OT coursework. Students apply to the OTD program during the spring of junior year, and accepted students transition into the OTD program at the College of Pharmacy and Health Sciences for their fourth year. OTD students join undergraduate classmates in receiving the Bachelor of Arts or Bachelor of Science degree, and the final two years of doctoral study in the OTD program prepare students for licensure and work in a practice, administration of a department, or academic work in higher education.

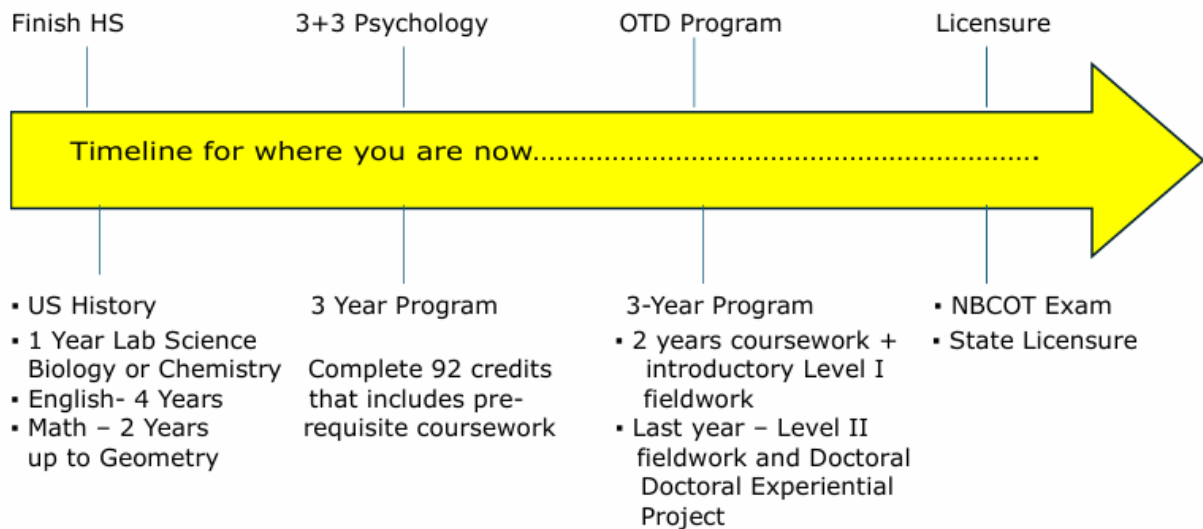
More information can be found on our website at: [3 + 3 Programs with OTD.](#)



3+3 Neuroscience/OTD



3+3 Psychology/OTD



Careers in Occupational Therapy

Career Pathway	Settings
Pediatric OT	<ul style="list-style-type: none"> - Early Intervention - School setting - Outpatient clinic - Community Education - Children's Hospitals - Neonatal intensive care unit (NICU)
Outpatient/Orthopedic OT	<ul style="list-style-type: none"> - Hospitals - Home Health Care - Hand Therapy - Neurorehabilitation
Acute and Chronic Care OT	<ul style="list-style-type: none"> - Hospitals - Burn Care and Rehabilitation - Longterm Care Facilities - Skilled Nursing Facilities - Hand Therapy - Hospice Care
Mental Health OT	<ul style="list-style-type: none"> - Hospitals - Outpatient Mental Health Clinics - Community - Correctional Facilities
Other Areas of Practice	<ul style="list-style-type: none"> - Academia - Research - Group Homes - Homeless Shelters - Community-Based - Private Practice

Contact Information

Health Services

The Center for the Sciences and Pharmacy, Suite 235

413-782-1211

On WNE phones dial 1211

Public Safety on WNE Campus

For Emergencies: 413-782-1411 | For Non-Emergencies: 413-782-1300

On WNE phones dial 1207 or email: police@wne.edu

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