

Chapter 1

Personal Comfort and Safety

Introduction

The purpose of this section is to give you guidance on how to remain comfortable, safe, and healthy while in the field.

You are required to read and study this section prior to participating in any field activity.

Please study this section to make sure you are acquainted with the described safety issues.

This course involves a substantial amount of time outside the laboratory, and in the field. Some of the field outings will involve a fair amount of walking and standing – sometimes in the heat of the midday sun. Although our walks will proceed at a slow pace, with numerous stops, you should evaluate your own medical condition and physical conditioning with this kind of physical exertion in mind.

Who should pay special attention to this section?

If you fall into any one of the below categories, you should pay special attention to the recommendations outlined in this section, and take special precautions to remain comfortable, healthy, and safe. You should pay special attention if you:

- do not exercise at least twice a week.
- are not in top physical condition.
- are overweight.
- are underweight.
- have a medical condition that could be aggravated by hiking up a small hill, or from being exposed to heat in the mid-day sun.
- are taking medications that reduce your tolerance to heat and/or to moderate physical exertion.
- have suffered from heat illness in the past.
- are easily winded following moderate physical exertion.

Even if you do not fit into the above categories, you still are required to adhere to sensible safety measures. In addition, your instructor may set forth his/her own requirements for all students.

This section is intended to provide you with substantial information on what kinds of environmental conditions you can expect in the field, and how you can take precautions to remain comfortable, safe and healthy. Because we will spend much of time in the field, there are two major safety and health concerns that need to be addressed. They are:

- 1) Getting to and from the field site
- 2) Staying comfortable, safe, and healthy while working in the field



Getting To And From The Field Site

There are two main ways you will get to the field site. They are:

- 1) driving your car
- 2) riding with your instructor in the school van

What does it mean to you if you drive your car?

Many students prefer to drive their own cars to field sites. This is OK as long as you understand the following key points:

- Neither the North Orange County Community College District (District), Fullerton College nor your instructor are requiring you to drive your car to field trips. You are not expected to drive your car to field sites as part of the requirements for this course. If you *do* drive your car to field sites, the District, Fullerton College and your instructor understands that you do so freely and voluntarily.
- If you drive your car, you and your car are expected to satisfy the following conditions:
- Your car must be in safe operating condition. This means it has good brakes, seat belts for the driver and all passengers, and other safety features required by California law.
- You have a valid California Driver's License
- You carry at least the minimum amount of automotive insurance as required by California law.
- If you or your car do not satisfy these criteria, then please do not drive your car (especially with other students) to the field site. Instead, consult your instructor in order to arrange for a safe, alternative means of transportation.
- Fullerton College and the District consider that the travel distances to the field sites are within reasonable commuting distances, similar to the distances many students drive from their homes to school. As such, it is the District's general policy that your own insurance carrier is primarily responsible, and not the District, should you become involved in an automobile accident while driving your car to or from a field site.
- There are several alternatives to driving your car to field sites. They are:
- Carpooling with other students who satisfy the criteria
- Riding with your instructor in the school van
- Riding the OCTD bus
- Being driven to and from the site by a friend or family member
- Check with your instructor to make other arrangements if you decide you do not want to drive your car. You are not obliged to state any justification. Remember, driving is voluntary.

What happens if you are late to the field site?

We encourage all students to arrive at the field site a little early. This gives us time to get organized. Your field experience will be more complete if you arrive on time, but we understand some folks will arrive late too.

Good students sometimes worry about getting to the field trip late. This is normal, but remember to put things in perspective when it comes to comparing this class with the specialness of your life. This class is one of many classes you will take in your college career. It's important, true, but not important enough to put your life in danger. The point is, if it looks like you are going to be late to the field trip, then... be late. Driving is dangerous enough, even when you drive safely. Please don't drive unsafely just to make it to the field site on time, especially if you have other students in your car. It is much, much more important that you arrive safely (if late) than on time.

Besides, you can still have a satisfactory experience even if you arrive a little late to the field site. Below are the reasons why:

- You *will* be able to find us. Just look for the group of 25 people. We'll stand out.
- You can do some catching up, while the rest of us plod along.

- If you are really late, you might be able to make up the exercise with another section of the class, at a later time. Check with your instructor. This option is not always available because of the variety of class schedules.

How Not To Be Late: You can minimize the chances of being late to field trips by doing the following kinds of planning:

- Write down the planned meeting time.
- Read the description of the exercise that is presented in the lab manual at least the day before the scheduled trip. So, if you *are* late, at least you will have some idea of what's going on when you finally arrive.
- Familiarize yourself with the map, and instructions before you start out.
- Give yourself enough time to safely drive to the field site.
- Make sure you have enough gas in your car to get you to the field site. If not, give yourself enough time to stop for gas.
- Give yourself enough time to eat before the field trip, or plan on taking your lunch with you.
- Pack your lab manual, notebook, and all other field materials the night before.

Which way should you go?

Maps of all the field sites are provided in this lab manual. The maps show the location of the field site relative to Fullerton College. The instructor normally will go over this map with the class and give some guidelines on how to locate the site, and where to park.

Sometimes the instructor will describe the route he/she will take from Fullerton College. This route is described only as one example of the many possible routes you can take. It is not meant to be the required, or even the recommended route. You may choose any route that best suits your particular circumstances and preferences.

What if you don't want to drive?

If you decide not to drive your car, consider the following alternatives:

- Carpooling with other students who satisfy the criteria
- Riding with your instructor in the school van (subject to availability)
- Riding the OCTD bus
- Being driven to and from the field site by a friend or family member

Staying comfortable, safe and healthy while working in the field

Face it. Most of us are city folks. We know our way around Angel Stadium and the Main Place Mall. We're street smart. We're highly skilled at surviving in the wilderness of the city. We depend on air conditioners to keep us cool if it gets too hot. If it rains, why just snuggle up to a cozy fire in the living room. No need to get wet. Too cold? Turn up the heat. We have perfected the art of discomfort avoidance. Unfortunately, in order to eliminate discomfort, we have needed to insulate ourselves from the source of the discomfort, meaning NATURE. Since this course is about discovering nature... on its terms and not ours, there is a significant potential that you might feel some discomfort, i.e. hot, thirsty, cold, wet, hungry, feet hurt, full bladder, bugs, snakes.

So, are you destined to be totally uncomfortable in the field? Well, there is good news and bad news. First the bad news. All those old tricks you use in the city won't work for you in the field. There are no thermostats, no air conditioners, no 7-Elevens, no shelters to duck into, no windows you can close or open, no carpets, no screen doors, no drinking fountains, and no coke machines. Feeling withdrawal symptoms coming on? The good news is you can adopt new tools that will enable you to stay pretty comfortable in the field. People who work in the field don't like discomfort any more than city folks. They have learned how to cope in spite of adverse environmental conditions. And you can too. It's not that difficult. The reward is, you will have a greater chance of enjoying nature.

If you have an ongoing medical condition

If you have an ongoing medical condition, it is important to discuss your plans to participate in this class with your physician. Tell your physician that you plan to take this field class and that it involves some moderate hiking in the mid-day sun. Get his/her opinion, and take care of yourself accordingly.

Your medical condition is confidential. However, if there is reason to suspect that your medical condition may put you at significant risk during field activities, you are obliged to inform your instructor.

You are required only to notify him/her of the nature of the risk. You are not required to disclose personal medical information. For example, simply stating,

“My medical condition makes me especially intolerant to heat”,
would be sufficient notification.

Your instructor needs you to make this simple disclosure so he/she can make informed decisions on how to make your field experience as safe and enriching as possible.

Planning to be comfortable in the field

Let's take each one of the sources of discomfort listed above and develop a strategy for avoiding them.

Hot, Thirsty

Probably the greatest hazard we will encounter in the field, will be the heat. Depending on the time of year, we could be in the chaparral, fully exposed to the sun for several hours. Some of us have a low tolerance for heat. If you become overexposed, you could develop Heat Illness, and that could be very dangerous for you.

For more information on Heat Illness, see the section below entitled, “Heat Illness”.

Here are some tips to minimize your vulnerability to heat and dehydration.

- Wear light colored, lightweight fabric, loose fitting clothes.
- Cover as much of your body as possible. This means long pants and long-sleeved shirts.
- Wear a hat, preferably a light-colored hat. The best kind of hat is a big ol' beach hat, made out of straw and with a wide brim. It has a tall crown that provides a cooling buffer between the top of your head and the sun. Straw is usually light-colored, and reflects much of the sun's heat. And the wide brim shades your whole face and much of your upper body. But the wide brim also catches the wind, and the hat easily blows off your head. So if you get a wide brim hat, try to get a hat that has a way to tie it under your chin.

If you don't have a wide brim hat like this, any hat is better than no hat. The next best hat would be some type of hat that has a brim all around. Baseball type hats are not the best design but are acceptable. Visors have no protection for your head. **VISORS ARE NOT HATS.**

Your instructor may require you to wear a suitable hat before permitting you into the field.

Things recommended NOT to wear include:

- Dark colored clothing and hats. Dark fabric absorbs more of the sun's heat.
- Heavy weight fabric. It is not recommended to wear sweats on a hot day. Sweats are designed to trap body heat. You want to release it.
- Tight fitting clothes. Tight fitting clothes don't provide any cooling air space between your clothes and your skin. This means that your clothes will transmit the sun's heat directly to your skin.
- Short-sleeved shirts, and shorts. When your skin is exposed, you are more likely to take in more of the sun's heat. True, evaporation should help cool you down, but since you're taking in more heat, you will perspire more, and run a greater risk of dehydration.

- **WATER:** One of the most effective weapons you will have against the heat is water. Bring along a non-breakable container of at least 1 quart of water. Make sure the container is re-closable. You should be able to tightly secure your water container so that it doesn't break open if you drop it. It doesn't have to be a military spec canteen. Any of the popular, designer mineral waters come in suitable containers. Your instructor may require you to have a suitable container of water with you before permitting you into the field.
- Soft drink cups, cans or sport cups are not recommended. They tend to be found along the side of the trail after the field trip, or spill open easily when dropped. Your instructor may forbid these kinds of containers.

Cold, Wet

During the months of October through March, you are going to need to prepare for wet and cold weather. True, it doesn't usually get below 50° F during the winter days. But this is cold enough to put you at risk of hypothermia (where you could get too cold and go into shock). This is especially true if you don't get outside much during the cold months. Here are some suggestions to help keep you comfortable in the field:

- Bring along a jacket, and a sweater. You can layer these to adjust to whatever temperature it is. Don't leave them at home. Make the decision about what to wear when you get to the field site.
- Bring some form of rain protection, like an umbrella, rain coat, or poncho. We will continue our expeditions even in light rain, so plan for it.

Your instructor may require you to be dressed appropriately against the cold and wet before permitting you into the field.

Hungry

Few things are worse than being hungry, and not being able to do anything about it. All you can do is think about how hungry you are. Experienced field people and hikers always carry some kind of snack with them. The nearest 7-Eleven may be miles away. Here are some suggestions on how to avoid distracting hunger while in the field. Think about putting the following types of snacks in your pack:

- peanuts (unsalted), almonds, cashews
- granola bars
- apple
- dried fruit
- sandwich
- wheat crackers
- trail mix

High sugar snacks like candy bars are not recommended. They give only short-lived relief, then you're hungry again. Not only that, the chocolate melts all over the inside of your pack.

Feet Hurt

You are going to be standing and walking for several hours with few opportunities to sit down. Be prepared to be on your feet for extended times. Keep in mind the following guidelines on shoes:

- Tennis and running shoes are just fine for most field activities. The spongier the soles, the better.
- Shoes like, high heels, and sandals are not suitable for the type of walking we will be doing.
- Hiking or walking boots are not really necessary. You don't need to buy them. But if you already own them, bring them along if you like.
- It may be muddy. You may want to throw an old pair of shoes in your pack in case of rain and mud. Suede shoes do terribly in the mud.

Your instructor may require you to be wearing appropriate footwear before permitting you into the field.

Full Bladder

Before you drink that whole 64 oz. big gulp soft drink on your way to the field trip, think about what you are going to be doing for the next few hours. Interrupting your field work to find a restroom, porta potty or bush may be inconvenient and embarrassing. And you will miss a lot, because the rest of us won't wait for you. So, ration your fluid intake before you get into the field. But don't let bladder concerns unwisely restrict your fluid intake once you are in the field, especially if it is hot.

Bugs

Bugs will be there to greet us. However, we are lucky not to have a real bug problem in California like they do in other parts of the world. Mostly, you won't really notice much of an increase in bug activity. However, if you absolutely hate bugs, or are allergic to bee stings, consider taking these precautions:

- Expose as little skin as possible
- Bees are attracted to yellow, blue and violet colors. If you don't like bees, avoid wearing clothing in these colors. In fact, avoid wearing any bright colors if you want bees not to notice you.
- Beetles and moths are attracted to strong, flowery fragrances. If you don't like beetles or moths, don't wear perfume, cologne, scented deodorant, or aftershave into the field.
- Wear a chemical repellent like Cutter brand insect repellent. This is not something we recommend for most students, because the insects at our field sites are rarely a problem. But if you normally wear insect repellent when you are outdoors, then don't forget it.

Snakes

Most of the snakes at our field sites are harmless. Still, there could be rattlesnakes at the Oak Canyon Nature Center. The general rule is to avoid all snakes. Remember, snakes are not interested in pursuing you. Humans are not on their menu. However, they will strike if they are startled or cornered. Usually, a big group of noisy humans gives snakes enough warning to get out of our way before we get to them. Snakes tend to active in the daylight hours during the coolness of fall and spring. When it gets hot, they tend to stay indoors during the day, and roam at night. Follow these general rules for avoiding snake bites:

- Wear heavy shoes or boots when hiking in the hills. If you have no boots, try wearing any high-top shoe that is suitable for walking along dirt trails. Wear long pants to protect your legs.
- Walk on clear paths. Look and listen ahead for signs of snakes.
- Don't reach into an area or under a bush without first looking carefully to make sure no snake is resting there.
- If you see a snake, stop. Then quickly move at least 20 feet away back along the path, looking for other snakes. Give the snake time to get out of your way.
- Don't handle snakes. Even a dead snake can release venom.

If you see or hear a snake, immediately notify your instructor.

Heat illness

It can get hot at our field sites. Some people are more sensitive to the heat than others. Regardless of your age and physical conditioning, you can quickly get into real trouble if your body overheats. The purpose of this section is to inform you of the symptoms and dangers of heat illness.

You can avoid becoming a victim of heat illness by dressing appropriately and carrying water. For guidance on dress and water, read the section above under the heading "Hot, Thirsty".

Your body functions within a narrow temperature range. If your body's cooling mechanisms are overwhelmed, your core temperature could rapidly increase above a safe level.

A victim of heat illness may start by experiencing muscle cramps (Heat Cramps). Heat Cramps are brought on by a loss of salts from heavy perspiring. If the victim does not cool off, he/she may develop Heat Exhaustion due to dehydration. The most dangerous form of heat illness is Heatstroke (also called Sunstroke) which can cause shock, brain damage and death.

Being in a hot environment is only one factor that can lead to heat illness. Internal factors are important too. Certain medications can make you more sensitive to hot weather. Children and older people are more vulnerable. Heat illness can appear suddenly. You may go from feeling fine to sudden collapse. Even young adults in excellent physical condition can succumb if they ignore the warning signs.

Groups at highest risk

If you belong to any of the below groups, you should take special precautions to avoid heat illness. However, everyone who is exposed to hot weather is at risk, and should take normal precautions. The groups at greatest risk are listed below:

- children
- older people
- people who are not in top physical condition. You can be at your optimum weight but this doesn't mean you are in good physical condition. If you don't exercise regularly, you may not be in good physical condition.
- people who are overweight
- people who consume more than moderate amounts of alcohol
- people who use drugs
- people who take certain medications that reduce their tolerance to heat. If you take any medication, ask your doctor if your medication could reduce your heat tolerance. Take special precautions accordingly.
- people who become dehydrated

Signs and symptoms of heat illness

Heat Cramps

- muscle cramps, often in the abdomen or legs
- heavy perspiration
- lightheadedness, weakness

Heat Exhaustion

- cool, pale or red, moist skin. (Even if your internal temperature is rising, your skin may still be cool.)
- dilated (larger than normal) pupils
- headache
- extreme thirst
- nausea, vomiting
- irrational behavior
- weakness, dizziness
- unconsciousness

Heatstroke

- raised body temperature (above 102° F)
- dry, hot, red skin
- dark urine
- small pupils
- rapid, weak pulse
- rapid, shallow breathing
- extreme confusion
- weakness
- seizures
- unconsciousness

How to avoid dehydration

When your body is dehydrated, it reduces and eventually stops releasing water by perspiration. Perspiration is the body's leading cooling method. If you stop perspiring, your body temperature can rapidly rise. This is called "Explosive Heat Gain", and it is the main cause for heat illness. So, drinking lots of water is probably the simplest and most effective way to keep your body from overheating in the hot sun. Here are some guidelines on how to stay fully hydrated.

- Drink beyond your thirst. Don't rely only upon your thirst to tell you how much water you need. Thirst can be deceptive, and quenching thirst alone does not replace all the fluids that are lost under high heat conditions.
- As a precautionary measure, drink at least 8 ounces of water every hour while you are in the field.
- Urine should be clear and light. If your urine is decreased or if your urine darkens, you need to be drinking more water.
- Avoid coffee, tea, caffeine-containing sodas, and alcoholic drinks. They actually increase fluid loss.

What you should do if the heat gets to you

If you notice any of these warning signs, act immediately. Do not wait until you become faint or dizzy. Immediately do the following:

- Notify your instructor
- Or, notify a classmate who will then notify the instructor
- If shade is nearby, go to it. If not, then sit down and wait. Classmates will provide you with shade.