USING BINOCULARS

Most people have a little familiarity with binoculars. They have seen or handled them before. However, knowing some basic information will greatly improve your ability to use binoculars effectively.

Care: Your instructor will expect you to abide by these rules when using university binoculars.

1. Whenever you use binoculars, always place their strap around your neck. This will prevent accidents such as dropping the binoculars onto the ground or into water.
2. Never touch any of the glass components of the binoculars. Natural skin oils will leave a slight smear that is difficult to remove. Should the binocular lenses become dirty, inform your instructor who will arrange to have them cleaned.
3. Protect binoculars from moisture and dirt. The easiest way to do this is to return them to their carrying case whenever they are not in use. If it begins to rain, immediately place the binoculars someplace that will remain dry (inside a pack or the van). If this is not possible, at least try to shield them in some way: put them inside your jacket or cover them with your hands.

The power of the binoculars. Find two numbers printed on your binoculars separated by an "X." You will find either "8X40" or "8X42." The first part, "8X," refers to the power of the binoculars, indicating that they magnify 8 times. The second number indicates the size of the objective lens, the one on the end opposite that which you look through. The larger the objective lens, the more light it gathers and hence the brighter and more, colorful the view. However, increasing the size of the objective also increases weight so the size of the lens represents a compromise between weight and light-gathering ability. The university has two types of binoculars, Bushnell 3X42 and Bausch & Lomb 3X40.

Adjusting binoculars. The two halves or barrels of binoculars pivot in the center where the focus wheel is located. You can use this to adjust the binoculars to the distance between your eyes. First, spread the two sides as far apart as possible and view some distant object. You should see two images separated by a dark gray or black area. Next, press the two halves together until this dark area disappears and the two images merge into one. Note that .there is a numbered scale to the left or right of the spot where the power of the binoculars is printed. A small pointer in the shape of a dot moves along this scale as you change the width of the binoculars. When you have the width comfortably adjusted, make note of the location of the pointer on the scale so that in the future you can quickly adjust the binoculars.

One of your eyes may have better vision than the other, a fact well known to those who wear glasses or contact lenses. Binoculars can be easily adjusted to compensate for such differences. To do this, stand 30-40 feet from a sign with lettering (or any object showing a lot of surface detail) and follow these steps:

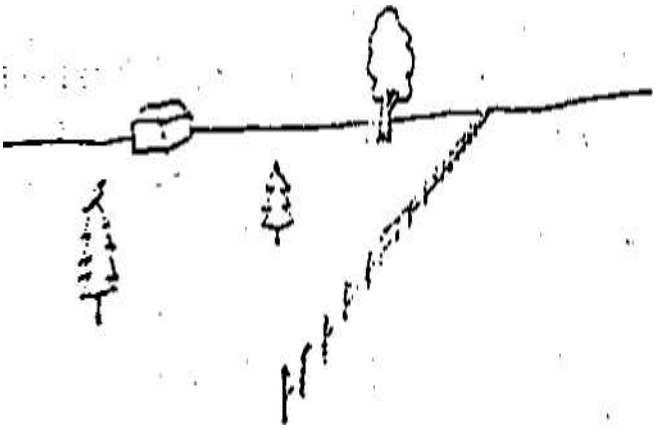
1. Rotate the focus wheel as far to the left as possible so that the ocular lenses extend the maximum distance from the body of the binocular.
2. Note that the right ocular rotates and has a scale printed on it with " + " at one end and "-"at the other. Rotate this ocular counter-clockwise until it stops.
3. Cover the right objective lens of the binocular with your hand and look through it with both eyes open at the sign. It will appear quite out-of-focus. Bring the sign into focus using the center

focus wheel. To ensure the best possible image, focus past the sharpest focus then back up to find it again.

4. Now uncover the right side and cover the left. Keeping both eyes open bring the view into focus by rotating the right ocular. Again, to ensure the best image, focus past the sharpest view then back up to find it again.
5. Note the reading on the scale printed on the right ocular. For those whose eyes are equal in strength, the reading should be near 0 at the middle of the scale. The binoculars should now be adjusted for your eyes. However you may wish to repeat this entire process if you feel a slight eye-strain when viewing the sign with both sides of binocular uncovered.

Using binoculars. The two greatest difficulties that beginners have with binoculars is holding them steady and locating the object that they wish to view. Steadiness comes with practice, but there are some things you can do immediately to help. The first is to hold the binocular with two hands rather than one. The second is to brace the binoculars with your thumbs. To do this, hold them from the sides using only your fingers and the palms of your hands. In this way, you can steady the binocular by placing your thumbs on your cheekbone.

Your ability to find the objects through binoculars will also improve with practice. However, at first, you might find it helpful to use reference objects. Any object that you can easily locate through binoculars can serve as a reference. For example, long, linear features, like fences or the horizon, make excellent references. For an example, imagine that you wish to find a bird perched on a small pine as pictured below.



First note the bird's position relative to the reference, in this case, below and to the left of a house on the horizon. Then, viewing through the binoculars, move along the horizon until you find the house. Next, move below and to the left until you find the pine with the bird perched on it. Similarly, you could find a bird perched within a large tree by following large branches or by using the crossing of two prominent branches as a reference.

Tips for eye-glass wearers. People who wear glasses often find binoculars somewhat difficult to use. The problem is that, with glasses on, you cannot get your eyes as close to the lens as you can with your glasses off. There are two things that you can do to improve this situation. First, try using the Bushnell binoculars rather than the Bausch & Lomb. The design of the Bushnells allow you to get a good view with your eyes slightly farther from the lenses. The second thing you can do is to fold down the rubber eye-cups that extend outward from the ocular lenses. This lets you put your eyes closer to the lens. If these methods prove unsatisfactory, try sliding your glasses up onto your forehead and out of the way when you look through the binocular.