



# **CASE TEACHING NOTES for "Lost in the Desert!"**

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## **INTRODUCTION / BACKGROUND**

The overall purpose of this case study is to demonstrate the interconnectedness of the body, with the focus being on the skin as one of the most important homeostatic organ systems. Particular concerns are listed below under "Objectives."

I have used this case study for the last five years in my two-semester human anatomy and physiology course. This course is offered to entering freshman students (who nevertheless meet certain reading and math requirements) who wish to pursue a career in various health-related fields. It was designed for students in the first third of the first semester of their lower-level anatomy and physiology class who are interested in nursing, physician assistant, occupational therapy, and related fields. The class would have covered the tissues, chemistry, and basic biology sections of the course beforehand. Many professors would have covered areas related to the skin's role in thermoregulation.

### **Objectives**

Upon completing this case, the student will be able to:

- Elucidate the importance of electrolyte and fluid control in the normal body: hypovolemia, circulation (in an introductory way), brain functions, sweat formation;
- Accurately describe the skin's role in thermoregulation; and
- Explain the roles and formation of melanin and vitamin D in the skin.

## **CLASSROOM MANAGEMENT**

This case is taught using the directed case method. In the directed case method, students are asked to prepare answers to a series of questions related to a case and then provide the answers when called upon to do so in class. Instead of asking the students to prepare their answers in advance of class, as is often the case with the directed case method, I have them do this in class, working in groups, as described below.

The case was designed to be used during a single lab class or discussion section period. I break the class up into groups of four to nine students. Care should be taken to avoid friends being put with friends, as is usual in cooperative learning. Students are given the case in a progressive disclosure format. I give the parts of the case out on index cards to each group and direct them to discuss the material and the questions related to each part in their groups. While they are doing that, I walk around the room to get a

sense of how the groups are progressing and answer questions and give hints when they get stuck. When they seem ready, I call on them to provide their answers and we discuss them and then move on to the next part. I call on different members of each group at different points during the class so that the same people are not giving the answers each time for their groups. This usually takes about 10 minutes for each part of the case. The last set of questions takes longer. Altogether, the entire exercise takes about 40 to 50 minutes.

To research the questions in class, the students use their textbooks (I usually bring in a few extra copies of these the day of the case), their lecture notes, and the Internet since my classroom is equipped with computers with Internet access.

## ANSWER KEY

Answers to the questions posed in the case study are provided in a separate answer key to the case. Those answers are password-protected. To access the answers for this case, go to [the key](#). You will be prompted for a username and password. If you have not yet registered with us, you can see whether you are eligible for an account by reviewing our [password policy](#) and then [apply online](#) or write to [answerkey@sciencecases.org](mailto:answerkey@sciencecases.org).

## REFERENCES

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## Selected Web Sites:

If there are no computers connected to the Internet in the classroom, the instructor might consider printing a number of copies of the following websites.

- "Essential Water All Year" at [http://www.peakrun.com/articles/66\\_1.htm](http://www.peakrun.com/articles/66_1.htm)
- "Extreme Heat" at [http://www.bt.cdc.gov/disasters/extremeheat/heat\\_guide.asp](http://www.bt.cdc.gov/disasters/extremeheat/heat_guide.asp)
- The Skin Cancer Foundation at <http://www.skincancer.org/>

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**Image Credit:** Photo of the view southwest from Palm Canyon by John Crossley, The American Southwest (<http://www.americansouthwest.net/>). Used with permission.

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