

# ETV Entomology at the University of Nebraska<sup>1</sup>

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During the 1967-68 academic year the Department of Entomology, University of Nebraska, produced a 42-tape television course for upperclassmen undergraduates in introductory entomology, "Introduction to Entomology." It was produced for use by the Nebraska Educational Television Council for Higher Education (NETCHE), which transmits a large selection of courses to practically every college in Nebraska including our own University of Nebraska.

One of our principal objectives for producing the course was to make lectures and laboratory demonstrations in entomology available to colleges which did not have qualified entomologists on their biology staffs or were otherwise not offering a course in entomology. Our own introductory course does not have a formal laboratory. Thus, except for occasional, non-compulsory "help sessions" for students who wish to attend, laboratory material was not being presented. Our introductory course is offered each semester during the academic year primarily for non-entomology majors.

## METHODS

**Studio:** Each video tape is 30 minutes in duration including approximately 29 minutes of lecture plus opening and closing credits. A great amount of material can be presented in 29 minutes with the absence of student comment and/or question. This, however, is one of the primary disadvantages because the lecturer has no immediate indication from students as to their grasp of the material being presented.

In the TV sequence many laboratory items are viewed with just a normal television camera. However, numerous items require greater magnification than can be achieved with the camera alone. We accomplish this by situating the 90 mm lens (set at infinity) of a normal image, orthocon television camera onto either eyepiece of a stereomicroscope. (The microscope currently in use is the M-5 Stereomicroscope, Wild Heerbrugg Instruments, Inc.) There is no problem of focusing the television camera because the microscope does the focusing. One disadvantage of this arrangement is that everything has to be positioned at a fixed level established before the camera is situated over the eyepiece. A microscope with a fixed body and a movable stage would eliminate this disadvantage. It is not requisite to production of good images, however. Lighting was accomplished by attaching paired microscope lamps onto the microscope, then normal electronic adjustments for shading, contrast, et cetera, were made in the control room. Figure 1 of the studio set and microscope-television camera arrangement illustrate very well the simplicity of our set-up.

Photographs (35 mm slides) from our teaching collection and motion pictures were used in many of the lectures. These were especially useful when discussing taxonomic groups and certain commodity pests. Most of the filmed material has the advantage that it is prepared from living specimens in their native habitat rather than being preserved in alcohol or mounted on pins and/or glass slides. The adage that, "One picture is worth a thousand words," is certainly true in my opinion with respect to teaching entomology.

**Classroom:** The course is divided into two parts. The first 22 lectures cover aspects of general or basic entomology. The last 20 lectures cover aspects of applied or economic entomology. This arrangement especially suits our introductory course because practically all of the students in our own classes are from the College of Agriculture. Currently, there are 59 students enrolled in the course.

The fact that each lecture is of only 30 minutes duration is unique compared to many educational television courses where each lecture fills a complete 50-minute period. We use the last 20 minutes to answer questions from students or to discuss more fully the topics presented in the lecture. Often the students keep the "on site" instructor, or his guests, busy with discussion of material that relates to the lecture topic, but had not been covered there or had only been covered briefly. Examinations are scheduled separate from the lecture period.

Each student is presented with a course guide (1). Instructors at each college using the course also have available to them an instructor's guide (2). The course guide contains annotated outlines of each lesson topic which the students rely upon heavily for note taking and as a study guide.

Since the ETV Entomology lectures are transmitted on a regular basis only during the spring semester, we have some grounds for comparison of teaching methods. After having used the television course for the second time I believe that students are coming out of the course with a greater comprehension of introductory entomology than with the classical lecture course. This is especially so with respect to knowledge of insect anatomy, taxonomy, and economic species because we are able to bring the laboratory and, in some cases, field situations to them. As an alternative we could have initiated a lecture-laboratory course. However, junior-senior level courses of this type that are not graduation requirements are unpopular because practically every course required in their majors has a compulsory laboratory with it.



Fig. 1. View of the set, microscope-TV camera arrangement and instructor during one of the taping sessions. (Note: The microscope shown here is an AO-Spencer, Cycloptic Stereomicroscope.)

## FUTURE OF ETV ENTOMOLOGY AT NEBRASKA

At the present time we plan to continue using the television course on a one semester per year basis. Each year we re-tape approximately one-third of the total of 42, hopefully improving the quality of the sequence each year. Color may be one of the improvements considered in the near future.

## REFERENCES CITED

1. Raun, E. S., and T. J. Helms. 1968. Introduction to Entomology - Course Guide. Nebraska Educational Television Council for Higher Education, Lincoln.
2. Raun, E. S., and T. J. Helms. 1968. Introduction to Entomology - Instructor's Guide. Ibid.

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So that there would be more direct, personal contact between the students and instructor. I would prefer to go to a completely closed-circuit system whereby lectures could be presented in person with a small television unit at hand to present the laboratory material. Such an arrangement would allow for on-the-spot questions from students instead of waiting until the end of the lecture for discussion. Another possibility which we have experimented with is the production of so-called "single-topic" films, thus bringing the laboratory to the student in another fashion. This type of "teaching aid" also has commercial possibilities for distribution to other colleges.

# Teaching Animal Science

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A course in Animal Science can be a very challenging and rewarding experience. In order to meet the challenge, one of the first things an instructor must do is understand and know his students. On the surface this seems to be a superfluous statement, because most instructors would say that they know the students they are teaching. However, if we investigate the situation, do we ever become as well acquainted with our students as we should?

## 1. Personal Interview.

One of the ways in which we can understand our students is to give each one a personal interview before he is accepted at the college of his choice. It is a sacrifice for faculty members to give up *their Saturdays* to interview prospective students, however, it does pay big dividends in better acquainting the faculty with their prospective students.

Students seeking to enter Animal Science have different backgrounds, goals, and objectives, as well as different high school records. A short discussion with a student, which may take twenty to thirty minutes, certainly can be extremely informative for the faculty member. In the give and take of a personal interview, the student gets to know at least one faculty member on the campus before he is even accepted at the college.

The faculty member, on the other hand, increases his knowledge of the student's personal background. In some cases, students come from very large livestock farms where they had worked for years with animals, while in other cases, many students have never had the opportunity to work with livestock at all. In most cases, the high school record will indicate the potential the applicant has for college level work. In discussing his various study habits, and in observing his past performance, a faculty member has a better understanding of the student's capabilities for college work. When a faculty member has an understanding of the high school curriculums and the experiences his students have had, he will be better able to challenge them in his classes in Animal Science.

Another very important aspect of the interview is to determine the specific goals and objectives of the applicant. Are the majority of our students capable of going on for advanced degrees, or will they terminate their formal education and go back to the farm, or into the agri-business field after completing two years?

## 2. Keep Abreast.

Another method by which the faculty member can better understand his students is to keep abreast of what is going on in the agricultural field. If a faculty member is interested in breed promotion sales, in livestock and dairy cattle shows, in

various meetings that are attended by young people, he certainly will become better acquainted with his prospective students. A faculty member in college teaching must keep abreast of the 4-H and FFA activities because many of the young people who seek admission to colleges are products of 4-H programs, or Future Farmer of America programs. In attending meetings, shows, and sales, he will meet many of the young people who aspire to a college education.

## 3. Active Advisor.

A third way of keeping up-to-date with the students is to be an active advisor for a group of young people. Faculty members teaching in the Animal Science area should take personal pride in advising the students in the Animal Science curriculum. Five minutes in an office conference may explain why a certain student is uninterested in a particular phase of an Animal Science course. The instructor should certainly be able to determine many problems of adjustment that young people have during the first semester away from home. He may not be able to solve all these problems, but if he listens to them, and is concerned, he will have a better understanding of the students in his classes.

If an Animal Science Department has more than one faculty member, it is extremely valuable to discuss students in a departmental meeting. One faculty member cannot possibly know everything about all the students, therefore, in a discussion centering around students, many ideas are expressed about the capabilities of certain students, and whether or not they are being adequately challenged in their college programs.

## 4. Know Student.

It is, of course, necessary to have a strong background in subject material. It is necessary to keep up-to-date on feeding of livestock, diseases of cattle, horses, sheep and swine, and also the latest developments in the field of genetics. However, it is just as necessary to know the hopes and aspirations of our students.

... It is important to know what percentage of our students come with a strong farm background, what percentage of our students come from rural areas, and what percentage of our students come from large metropolitan areas.

... It is just as important to know how many students have an I.Q. of 120 or above, how many students have an I.Q. of 110 or below.

... It is important to know what percentage of your class will eventually go into dairy farming, into beef or other livestock production, or perhaps will seek advanced degrees in agriculture.

... It is important to understand the economic and social background of the young people in your classes. How many of the students in your classes are at the college on loans, or working their way on a very meager income? What sacrifices do parents have to make in order for their sons and daughters to gain this education?

Yes, before teaching can be as challenging and as rewarding as we would like to make it, we must understand our students