accommodate our students can be used in any biology course to enhance the educational opportunities for handicapped students. All of our handicapped students benefited from having a note taker and from having written directions the day before each exercise was begun.

Other simple adaptations made in the lecture included having a sign interpreter for the deaf students and using an overhead projector instead of a blackboard so they could read the lecturer's lips. Concrete examples of abstract ideas were included. The overhead projector also helped vision impaired students. Blind students taped the lectures.

Most of our effort was put into field experiences, which were made accessible to students in wheelchairs by providing adequate muscle power to push them across rough terrain and carry them into and out of cars, busses, boats, and canoes. We found that with extra effort and care they could go everywhere the rest of us went—even rapelling over a sixty foot cliff. Some of these students could help with many of the field exercises if they were taken out of their chairs and put on the ground. Large knobs on microscopes helped, as did lap boards for the scopes. Some of the orthopedically-impaired and vision-impaired students found writing easier with newsprint and felt-tipped pens.

An effort was made to increase the use of touch and smell. Both the blind, who tend to have narrow understanding of the physical world, and deaf, who sometimes have difficulty with abstraction, seemed to benefit from this effort. Braille labels on bottles and lab equipment enabled blind students to perform nearly all of the activities.

The students were given pretests and posttests and showed considerable improvement in their scores after only two weeks. The low pretest scores told us that these handicapped students had poor backgrounds in science. Their active participation during the course and the improvement they showed on the posttest persuaded us that they can be included in normal science courses with minimum adjustment, and when included with do as well and as poorly as those without physical handicaps.

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THE JANUARY INTERIM PLUS NCEP AT CARROLL COLLEGE

John Bartha, (Biology Department, Carroll College, Waukesha, WI.)

17 years ago Carroll College undertook a college wide study of its curriculum. After reviewing many possibilities, the faculty voted (not unanimously) to go to the 4-1-4. This format seemed to provide opportunities to make innovative changes that would be more in line with a liberal arts education for the turbulent 60's.

Of particular interest to a number of the faculty was the January Interim. This time slot seemed to provide an outlet for field experiences not normally found in a semester program by providing for a time other than summer when students were involved with jobs, etc.

The early "off campus" trips were financed entirely by the students. These monies were required in addition to those of tuition, fees, room and board. The scope of programs ranged from Moscow, Russia to Jamaica and involved departments of Political Science, History, Art, Biology, English, Economics and Foreign Languages. The off campus experiences were limited to those students with Junior or Senior standing. It was obvious that it would be impossible for all Carroll upperclass students to take part in this program. Therefore, an "on campus" program had to be developed for the underclass students plus the Juniors and Seniors unable to afford the additional costs. It was decided to provide courses on campus built around a theme. Each department would provide a departmentally constructed theme-related course. In the early years there were 25 on campus "theme" courses and 6 to 10 off campus courses.

As the "off campus" courses evolved, it became apparent that those who were able to afford the added costs were not always the students who would benefit the most from these experiences. In fact the "off campus" courses were fast becoming the "rich kids" classes.

After much discussion and many meetings with the administration and Board of Trustees, a way was developed to allow all Carroll students the opportunity to take part in the January "off campus" courses. The Foreign Student Scholarship fund, an increase in tuition and a start-up grant provided funds for the first NEW CULTURAL EXPERIENCES PROGRAM. This
program is now college funded and provides up to half the cost of the course to a maximum of $800.00 per student. At Carroll we have roughly 125 students per January in the various NCEP programs. This college funding enables many more students to take part in the off campus programs than previously.

The Biology Department at Carroll has had as many as 3 NCEP programs in a given year. A course in Tropical Ecology and Marine Biology has been taught for 17 years, both before and after NCEP. A course in Rural Health Care in the Third World was taught yearly but as a result of personnel changes, is now offered in alternate years. And a Socio-Biology course with a domestic field component is offered in June with NCEP funding. The latter focuses on Appalachia and is jointly taught with the Geography Department.

Any professor is welcome to create an NCEP course. However, an NCEP committee chaired by the Provost must pass on the viability of any new proposal. The original 6 NCEP courses have run successfully with a full compliment of students since the beginning of the concept 10 years ago. Other NCEP courses have been tried and for a variety of reasons not been sustained.

The programmers duties vary from doing all of the logistical work to calling travel agents and having them put a package together. Planning of an NCEP program is an overload, in addition to regular classwork and the myriad of normal college duties. However, the rewards are well worth the effort. Besides, after the winter of 1982, the Caribbean is not a bad place to be in January.

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ARTICULATION BETWEEN COLLEGES: BIOLOGY COURSES AND PROGRAMS IN TWO AND FOUR YEAR SCHOOLS

Paul A. Mayes (Muscatine Community College, Muscatine, Iowa and Robert Satterfield (College of DuPage, DuPage, IL)

Articulation between two and four year colleges has been a major concern of faculty and administrators involved with transfer students. Articulation is the process of separate units "coming together." In an educational context, this may be articulation of individual courses, such as Biology or Zoology courses, or of entire programs of study, such as the pre-Nursing program that leads to a BSN degree from a four year college.

Local, regional and national studies have examined this concern in attempts to understand and improve upon relationships between involved colleges. The student is caught in the middle of any controversies surrounding articulation concerns, and many of these studies have focused on the student's problems of transferring from one school to another. The students attend community colleges for many reasons, and often have intentions of completing baccalaureate degrees at four year institutions. Those that feel they will lose credits or entire semesters of study often fail to transfer and complete their degree, which hurts both institutions as well as the students.

Several states have produced agreements between state universities and public community colleges to relieve some of these problems. Iowa is one of these states, and our agreement covers broad based general education requirements for students transferring into the universities as college juniors. Additional work is needed, however, to insure that the students receive credit for specific courses in the Biology curriculum at the universities. Most of the above agreements and studies involve only articulation between public schools. Many of our students transfer to private four year colleges, so agreements must also be made with these schools.

Articulation agreements that involve courses in the Biological Sciences must generally be made first between the faculty members of the proper departments of each school involved. These agreements must usually be initiated by the two year college from which the students will be transferring. Careful attention to the specific requirements of each course and professor will enhance the relationships necessary for good agreements. Counselors, registrars and administrators at the articulating schools must all be made aware of any agreements and all of the particulars involved. A smooth transition for the transferring student should be the ultimate goal of this type of activity.