

# Teaching Linear Algebra and Abstract Algebra With Two Way Video and Audio

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## Introduction and Background

*During the spring of 1997 I was asked to consider teaching two mathematics courses via two-way audio and video.*

*Initial reactions.*

*Obstacles*

*Opportunities*

*Courses taught during 1997-98 academic year.*

## I. Campuses

### A. Local Campus

Concordia University

Seward, Nebraska

Abstract Algebra: 8 students

Linear Algebra: 17 students

### B. Distant Campus

Concordia University

Irvine, California

Both Courses: 6 students

### C. Concordia University System

### D. High Schools and Seminaries

## II. Classrooms and Equipment:

*Pictures and diagram of classroom*

A. Two way interactive audio and video using six telephone lines.

B. Pairs of televisions showing local and distant sight.

C. Four cameras per classroom, controlled by instructor.

1. Instructor

2. Class

3. Student

4. Document

### III. Course Content and Delivery:

- A. Traditional with some modifications due to medium
- B. Study Sessions at Irvine - *Melinda Schultheis*
- C. Course Home Pages
- D. E-mail and Phone
- E. Daily Quizzes and Homework
- F. Tests were faxed and mailed back overnight.- *quick feedback is vital*

### IV. Student Reactions and Achievement:

- A. Formal and informal evaluations were performed during both semesters. Student reactions were quite varied to the experience.
- B. Student achievement was very comparable to "traditional" courses. There was more effort required of students and instructors.
- C. "Being on TV"

### V. Instructor Reactions:

- A. Relationship with students - *interaction is important*
- B. Differences between the two semesters
- C. Equipment difficulties
- D. Level of preparation - *more prep than traditional course*
- E. Advantages and disadvantages of classroom - *equipment, focused attention*
- F. Challenges and opportunities

### VI. The Future:

- A. During the 1999-2000 academic year I will again teach these two courses to the Seward and Irvine campuses.
  - 1. First Semester - Linear Algebra
    - Seward - 23 students
    - Irvine - 2 or 3 students
  - 2. Second Semester - Abstract Algebra
- B. There may also be opportunities for myself or other faculty members to teach courses to other campuses as well as to some high schools.

Concluding Remarks - *Can be effective with the appropriate attitude and effort. Flexibility is a necessity.*