

EDUCATION 807/489

MICROWORLDS

and

THE WORLD OF LOGO

(A Professional Seminar--Fall 1983)

INSTRUCTOR: A. J. (Sandy) Dawson

WHEN: Undergrads: Mondays, 4:30 - 8:30
Graduates: Mondays, 4:30 - 9:30

OFFICE: MPX 8632

PHONE: 291-3189

WHERE: LRC and MPX 8631

OFFICE HOURS: Mon., 2-4 and by appointment

NATURE OF THE COURSE: The course will function as a PROFESSIONAL SEMINAR rather than as a lecture-tutorial-lab course. The essence of a professional seminar is that all participants (undergraduates, graduates, professors, and visitors) play more or less equal roles in the operation of the course. Each participant is expected to contribute to the education of one and all by means of discussions, presentations, sharing of experiences, reading, study, reflection, experimentation, and so on. Each participant will at various times take responsibility for leading portions of course meetings.

OBJECTIVES: The course is designed for prospective and practising teachers who have had some experience with microcomputers, and who have easy access to an Apple II+ micro or its equivalent. Students will be expected to:

become familiar with and confident in the use of LOGO;

explore with other participants and other learners (children and/or adults) the creation of a microworld environment using but not limited to LOGO;

engage in discussion and formulate their own rationale as to the how and why of microworlds and the educational implications of using microworlds in classrooms;

explore the realities of children's and adult's learning powers and patterns by an examination of their own learning powers and patterns.

On completion of the course it is hoped that teachers will feel at ease with LOGO, will have explicated their own philosophy relative to microworlds, and will have had some direct experience in the creation of a microworld for themselves and other learners.

OUTLINE OF TOPICS: Some of the topics and questions to be dealt with in the course are the following:

- a) Microworlds: What are they? What are their strengths and weaknesses? How are they created?
- b) What is LOGO? What can be done with LOGO? What is the philosophy behind LOGO? What has been done, and is being done with LOGO?
- c) What are the implications of the creation of microworlds for student-teacher interactions? for student learning styles? for teacher teaching styles? for discovery learning?
- d) What other software support (do not support) the creation of microworlds? What is MATHEMATICS: VISIBLE AND TANGIBLE?

TYPICAL REQUIREMENTS: Students will be expected to:

participate fully in class discussions and lab activities;

become thoroughly conversant in the use of LOGO;

study their own strengths, weaknesses, and questions vis-a-vis the creation and use of microworlds, and to keep a record--a journal--of this study;

prepare, try-out, and report on an experiment which demonstrates the use of microworlds;

complete a term project developed in consultation with the instructor, vetted with other participants, and reported on to the class.

ELIGIBILITY: Previous experience with microcomputers and easy access to an Apple II+ or its equivalent.

REQUIRED TEXTBOOK:

Seymour Papert, *Mindstorms: Children, Computers, and Powerful Ideas*, Basic Books, 1980

RECOMMENDED TEXTBOOKS and READINGS:

Harold Abelson, *LOGO for the Apple II*, Byte/McGraw-Hill, 1982 (THE RED BOOK)

Harold Abelson and Andrea diDessa, *Turtle Geometry*, MIT Press, 1981

J. Dale Burnett, *LOGO: An Introduction*, Creative Computing Press, 1982

BYTE, *The Small Systems Journal*, August, 1982 edition