SIMON FRASER UNIVERSITY

S.81-25

MEMORANDUM

To .... Senate .... From. Office of the Dean of Graduate Studies

Subject.... New Graduate Course Proposals - Date.... December 16, 1980
Faculty of Education

MOTION: That Senate approve and recommend approval to
the Board, as set forth in S.81-25 - New Graduate
Course Proposals - Faculty of Education.

These changes were approved by the Executive Committee of the
Senate Graduate Studies Committee on December 15, 1980.

Bryan P. Beirne
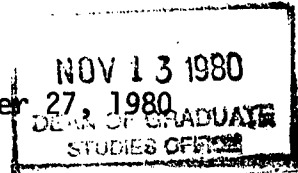Dean of Graduate Studies

/bjr

attachs.

SIMON FRASER UNIVERSITY

MEMORANDUM

To Dr. Bryan P. Beirne

Dean of Graduate Studies

From J. W. George Ivany

Dean of Education

Subject

Date 1980-11-12

The Faculty of Education at its meeting on October 27, 1980
approved the attached new course proposals:

    EDUC 851   Computer-Based Learning

    EDUC 860   Contemporary Instructional Psychology

JWGI:nb
cc Executive Committee
Enclosures

CALENDAR INFORMATION:

Department: __Education__   Course Number: ___851___

Title: __Computer-Based Learning__

Description: __This course will examine the role of computers in education with an__

__emphasis on computer based learning using microcomputers.__

Credit Hours: ___5___   Vector: _____   Prerequisite(s) if any: _An appropriate_

_____ _introductory course in computer science and/or consent of instructor._

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: ___15___ When will the course first be offered: __Fall 81__

How often will the course be offered: __once per year__

3. JUSTIFICATION:

   __There is a growing interest on the part of teachers, students, school boards__

   __and the Ministry of Education to develop the use of computers in schools. This__

   __course will provide teachers with knowledge and skills necessary to exploit this__

   __technology.__

4. RESOURCES:

   Which Faculty member will normally teach the course: __Prof. Robert Jones__

   What are the budgetary implications of mounting the course: __None immediately;__

   __Should enrollment increase more equipment and teaching assistance may be necessary.__

   Are there sufficient Library resources (append details): _____

   Appended: a) Outline of the Course
              b) An indication of the competence of the Faculty member to give the course
              c) Library resources

   Approved: Departmental Graduate Studies Committee: _____ Date _____

              Faculty Graduate Studies Committee: _____ Date _Oct 7 80_

              Faculty: _____ Date _____

              Senate Graduate Studies Committee: _____ Date _____

              Senate: _____ Date _____

COURSE OUTLINE

The development and adoption of computer-based learning in education has been restricted by 1) the high initial cost and complexity of computer technology, 2) the lack of adequate instructional software and 3) a lack of knowledge and skills in the design and use of computer based materials on the part of educators.

With the arrival of relatively inexpensive and technically less complex microcomputers, the first two obstacles are rapidly disappearing. There is a need to develop in educators a critical appreciation of the potential of computers in education as well as the skills to effectively utilize this technology.

This course is designed for teachers who wish to investigate the various applications of computers in education, to develop skills in selecting and evaluating computer based learning materials, to develop skills in the design of computer based learning programs, and to develop their own and their student's computer literacy.

The course will cover the following topics:
1. Interface of the computer and education
   a) Developments in computer-based learning (CBL)
   b) Review of the research on CBL
   c) Microcomputer systems for education

2. Computer-based learning paradigms
   a) Computer-assisted instruction (CAI)
   b) Computer-managed instruction (CMI)
   c) Simulation and gaming
   d) Problem solving and modeling

3. Selection, evaluation and utilization of CBL materials
   a) Sources for CBL courseware
   b) Criteria for CBL materials
   c) Adapting and integrating CBL into the curriculum

4. Design and production of CBL materials

    a) Principles of instructional design
    b) Programming languages for education
    c) Producing CBL programs

Course activities will consist of lectures, demonstrations, readings and laboratories. Student evaluation will be based on short tests related to the lectures and readings, on programming and evaluation assignments, and on a final project consisting of the design and production of a computer-based learning program.

RESOURCES

The Learning Resources Centre has four Apple II microcomputers with magnetic disc drives, a graphics tablet and printer. A collection of sample programs and microcomputer journals and newsletters is being developed. The library has over eighty per cent of the books and journals on the reading list.

Robert Jones, the proposed instructor has over ten years experience in educational technology. His doctoral work at the Ontario Institute for Studies in Education was in computer applications and his current research interests are in the interfacing of television and computer technologies for instructional purposes. He has taught graduate level courses in microcomputers for teachers and trainers at McGill and Concordia Universities.

RECOMMENDED READINGS

Atkinson, R.C. Computer-Assisted Instruction: Final Report. Stanford, Ca.:
Institute for Mathematical Studies in the Social Sciences, Stanford
University, 1974.

Bailey, D.E. Computer Science in Social and Behavioral Science Education.
Englewood Cliffs, N.J.: Educational Technology, Publications, 1978.

Baker, F.B. Computer Managed Instruction: Theory and Practice. Englewood
Cliffs, N.J.: Educational Technology,Publications, 1978.

Barron, I. & Curnow, R. The Future With Microelectronics: Forecasting the
Effects of Information Technology. New York: Nichols Publishing Com-
pany, 1979.

Bullock, D.H. Programmed Instruction. Englewood Cliffs, N.J.: Educational
Technology Publications, 1978.

Computer Based Science Instruction. Proceedings of the NATO Advanced
Study Institute on Computer-Based Science Instruction, Louvain-la-Neuve,
Belgium, 1976.

Davis, W.D. & McCormack, A. The Information Age. Reading, Mass.: Addison-
Wesley Publishers, 1979.

Doer, C. Microcomputers and the Three R's: A Guide for Teachers. Rochelle
Park, N.J.: Hayden Book Company, 1979.

Dwyer, T. & Cutchfield, M. Basic and The Personal Computer. Reading, Mass.:
Addison-Wesley Publishing Company, 1978.

Dyer, C.A. Preparing for Computer Assisted Instruction. Englewood Cliffs, N.J.:
Educational Technology Publications, 1971.

Edwards, J.B. Computer Applications in Instruction: A Teacher's Guide to Selection
and Use. Hanover, N.H.: Northwest Regional Laboratory, Timeshare, 1978.

Felden, J. & Pearson, P.K. The Cost of Learning With Computers: The Report of the
Financial Evaluation of the National Development Programme in Computer Assisted
Learning. London: Council for Educational Technology, 1978.

Hicks, B.L. & Hunka, S. The Teacher and the Computer. Philadelphia: Saunder, 1972.

Huntington, J.F. Computer Assisted Instruction Using BASIC. Englewood Cliffs, N.J.:
Educational Technology Publications. 1979.

Meredith, J.C. The CAI Author-Instructor: An Introduction and Guide to the Indepen-
dent Preparation of Computer Administratable Instructional Materials in the
Conversational Mode. Englewood Cliffs, N.J.: Educational Technology
Publications, 1971.

Poirot, J.L. & Groves, D.N. Computer Science for the Teacher. Manchaca, Texas: Sterling Swift Publication Company, 1976

Rushby, N.J. An Introduction to Educational Computing. London: Croom Helm, 1979.

Serdel, R.J. & Ruben, M. Computers and Communications: Implications for Education. New York: Academic Press, 1975.

The Use of the Computer in Teaching Secondary School Subjects. Paris: Organization for Economic Co-operation and Development, 1976.

JOURNALS FREQUENTLY REFERENCED:

AEDS Journal
British Journal of Educational Technology
Byte
Calculators/Computers Magazine
Computers and Education
Creative Computing
Educational Communications and Technology Journal
Educational Technology
Instructional Innovator
Instructional Science
Journal of Computer Based Instruction
Journal of Educational Technology Systems
Programmed Learning and Educational Technology
Technological Horizons in Education

SFU LIBRARY COLLECTION EVALUATION

(To be completed only for new course or program proposals.)

EDUCATION

1. Course No. and Name or Program: No.886; No.860; No.851

    Date to be offered: ___Fall 1981___

2. Resources currently in collection:

    Reading lists. No. and % of titles available: ___110___ ___63___ %

    Related materials in general collection:

    Monographs: 1000+

    Serials Subscriptions: 50+

    Backfiles:

    Other:

3. Recommended additions to collection:

    (Indicate approx. no. of titles, vols.,

    date, as appropriate)

    Monographs: 75

    New serials subscriptions: 5

    Serials backfiles:

    Other (specify):

ESTIMATED COST
750.00
75.00

Total $825.00

4. Comments:

    The library's holdings are generally adequate to support the

    course at the 800 level.

    _____   _____
    For Library   For Faculty Department

CALENDAR INFORMATION:

Department: **Education**   Course Number: **Educ. 860**

Title: **Contemporary Instructional Psychology**

Description: **See attached**

Credit Hours: **5**   Vector: _____ Prerequisite(s) if any: **2 undergraduate courses in educational psychology, or equivalent**

2. ENROLLMENT AND SCHEDULING:

Estimated Enrollment: **10**   When will the course first be offered: **Fall, 1981**

How often will the course be offered: **Once a year**

3. JUSTIFICATION:

See attached

4. RESOURCES:

Which Faculty member will normally teach the course: **P.H. Winne, R. Marx**

What are the budgetary implications of mounting the course: **Assignment of ½ FTE per semester in which course is offered.**

Are there sufficient Library resources (append details): **yes**

Appended: a) Outline of the Course
           b) An indication of the competence of the Faculty member to give the course
           c) Library resources

Approved: Departmental Graduate Studies Committee: _____ Date _____

           Faculty Graduate Studies Committee: _____ Date **Oct 7 80**

           Faculty: _____ Date _____

           Senate Graduate Studies Committee: _____ Date _____

           Senate: _____ Date _____

GS 18/1/71

Education 860-5

Contemporary Instructional Psychology

Description: Critical analysis and synthesis of recent theoretical and em-
pirical research in instructional psychology and cognate areas.
Emphasis will be given to designing effective instructional
environments using principles gleaned from behavioral, cognitive,
and phenomenological perspectives.

Justification: Instructional psychology is a developing specialized area in education
defined as the scientific study of students' responses to en-
vironments engineered to control their learning. As such, it is
a meeting ground for many other areas of research, including but
not limited to: learning, human abilities and individual dif-
ferences, motivation, teaching, curriculum design, and measurement.
Instructional psychology is a theoretical
foundation for practices enacted by counsellors, teachers, coaches,
social workers, and other human services whose objectives are to
design, implement, and adapt environments to help a client or
pupil acquire and maintain capabilities not previously achieved.
Thus, all students pursuing studies concerned with knowledge and
skills for helping others learn can profit from this course.

Illustrative Outline:

Education 860 – Contemporary Instructional Psychology

I   Nature of instruction and theories of instruction

A. Components: content, task, learner, instructional stimuli
B. Views of strategy
1. Instruction as design
2. Instruction as dynamic and responsive problem solving
3. Instruction as communication
C. Criteria for theories of instruction

II The learner

A. Learning per se
1. Behavioral analyses
2. Cognitive analyses, including social learning theory
3. Phenomenological analyses
B. Intralearner variables
1. Motivational influences
2. Aptitudes, including developmental abilities

III Content and Task

A. Content structures and cognitive structures
B. Task analyses - components and sequences
C. Elements of instructional design

IV Instructional events

A. Instructional stimuli - textual, behavioral, learner-supplied
B. Cycles of instruction - preparation, presentation, practice, feedback
1. From the instructor's perspective
2. From the learner's perspective
C. Gauging interactive and longitudinal effects of instruction

References

Books

Anderson, O.R. Quantitative analysis of structure in teaching. New York: Teachers College Press, 1971.

Anderson, R.C., Spiro, R.J., & Montague, W.E. (Eds.) Schooling and the acquisition of knowledge. Hillsdale, N.J.: Lawrence Erlbaum, 1977.

Ausubel, D.P., Novak, J.D., & Hanesian, H. Educational psychology: A cognitive view, 2 ed. New York: Holt, Rinehart, & Winston, 1978.

Bandura, A. Social learning theory. Englewood Cliffs, N.J.: Prentice-Hall, 1977.

Carroll, J.S. & Payne, J.W. Cognition and social behavior. Hillsdale, N.J.: Lawrence Erlbaum, 1976.

Cronbach, L.J. & Snow, R.E. Aptitudes and instructional methods. New York: Irvington, 1977.

Gagné, R.M. The conditions of learning, 3 ed. New York: Holt, Rinehart, & Winston, 1977.

Gagné, R.M. & Briggs, L.D. Instructional design: Principles and applications, 2 ed. New York: Holt, Rinehart, & Winston, 1979.

Glaser, R. (Ed.) Advances in instructional psychology (Vol. 1). Hillsdale, N.J.: Lawrence Erlbaum, 1978.

Glass, A.R., Holyoak, K.J., & Santa, J.L. Cognition. Reading, Mass.: Addison-Wesley, 1979.

Guthrie, J.T. Cognition, curriculum, and comprehension. International Reading Association, 1977.

Kail, R.V. & Hagen, J.W. (Eds.) Memory in cognitive development. Hillsdale, N.J.: Lawrence Erlbaum, 1976.

Kash, M.M. & Borich, G.D. Teacher behavior and pupil self-concept. Reading, Mass: Addison-Wesley, 1978.

Kintsch, W. The representation of meaning in memory. Hillsdale, N.J.: Lawrence Erlbaum, 1974.

Klahr, D. (Ed.) Cognition and instruction. Hillsdale, N.J.: Lawrence Erlbaum, 1976.

Lesgold, A.M., Pelligrino, J.W., Fokkema, S.D., & Glaser, R. (Eds.) Cognitive psychology and instruction. New York: Plenum, 1978.

Meichenbaum, D. Cognitive behavior modification: An integrative approach. New York: Plenum Press, 1977.

Resnick, L.B. (Ed.) The nature of intelligence. Hillsdale, N.J.: Lawrence
    Erblaum, 1976.

Rosenthal, T.L. & Zimmerman, B.J. Social learning and cognition. New York:
    Academic Press, 1978.

Sieber, J.E., O'Neil, H.F., & Tobias, S. Anxiety, learning, and instruction.
    Hillsdale, N.J.: Lawrence Erlbaum, 1977.

Wickelgren, W.A. Learning and memory. Englewood Cliffs, N.J.: Prentice-
    Hall, 1977.

Journals

American Educational Research Journal
British Journal of Educational Psychology
Canadian Journal of Education
Cognition
Cognitive Psychology
Instructional Science
Journal of Applied Behavioral Analysis
Journal of Educational Psychology
Journal of Educational Research
Journal of Experimental Education
Journal of Experimental Child Psychology
Journal of Experimental Psychology: Human Learning and Memory
Journal of Research and Development in Mathematics Education
Journal of Research in Science Teaching
Journal of Verbal Learning and Verbal Behavior
Memory and Cognition
Psychological Bulletin
Psychological Review
Review of Educational Research

Annual Series

Annual Review of Psychology
National Society for the Study of Education Yearbook
Review of Research in Education

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    Serials Subscriptions: 50+

    Backfiles:

    Other:

3. Recommended additions to collection:

    (Indicate approx. no. of titles, vols.,

    date, as appropriate)

    Monographs: 75

    New serials subscriptions: 5

    Serials backfiles:

    Other (specify):

ESTIMATED COST
750.00
75.00

Total | $825.00 |

4. Comments:

    The library's holdings are generally adequate to support the

    course at the 800 level.

    _____   _____
    For Library   For Faculty Department