COVER SHEET - NEW and REVISED COURSES

•SEE I - VIII for Basic Course Proposal Guidelines•
•SEE APPENDIX FOR NOTES, EXPLANATIONS AND ADDITIONAL GUIDELINES•
•PRINT CLEARLY, TYPE or COMPLETE ELECTRONICALLY•

BEGIN FIFTEEN DAY REVIEW

APPROVED
CGC _10-10-02_
CGSP _10-16-02_

PROPOSAL DATE: Nov. 19, 2001   END FIFTEEN DAY REVIEW   _10-17-02_

DEPARTMENT AND COURSE NUMBER: COMPUTER SCIENCE 5764

TITLE OF COURSE: INFORMATION VISUALIZATION

TRANSCRIPT (ADP) TITLE (MAX-30 Characters):   INFORMATION VISUALIZATION

INSTRUCTOR and/or DEPARTMENTAL   Chris North
CONTACT:

CONTACT PHONE #: **231-2458**   CONTACT E-MAIL: **north@cs.vt.edu**

[x] **CHECK IF GRADUATE CREDIT IS REQUESTED (15 copies required for CGSP)**

CHECK **ONLY ONE** OF THE FOLLOWING BOXES

[x] **NEW COURSE**   [ ] **REVISED COURSE**   (REVISION > 20%)

[ ] **NEW COURSE & INCLUSION IN THE CORE**

[ ] **REVISED COURSE FOR INCLUSION IN THE CORE OR CORE AREA CHANGE**

•Courses routed directly to the University Core Committee MUST be endorsed by the appropriate Department Head or Dean.
•The Chair of the University Core Committee shall inform the appropriate college curriculum committee of all courses under review by the core committee.

•A   Attach Appropriate Letters of Support from Affected Departments and/or Colleges

•B   Effective Semester: Spring 2003

•C   Change in Title **From:**

      To:

•D   Change in Lecture and/or Lab Hours **From:**   **To:**

•E   Change in Credit Hours **From:**   **To:**

•F   Percentage of Revision from Current Syllabus:

•G   Course Number(s) and Title(s) to be Deleted from the Catalogue with APPROVAL of course:

•**FOR ALL COURSES, NEW, CORE AND REVISED:** Attach statement from Dean or Departmental Representative as to whether teaching this course will require or generate the need for **additional** departmental resources.
APPROVAL SIGNATURES / DATE
Department Representative   _Verna Schmidt_   2/18/02

College Curriculum Committee Representative _Virginia C. Fowler_   23 April 2002

College Dean   _Myra Gordon_ 4.25.02

COMPUTER SCIENCE 5764
INFORMATION VISUALIZATION
(ADP TITLE: INFORMATION VISUALIZATION)

I. CATALOG DESCRIPTION

5764   INFORMATION VISUALIZATION

Examine computer-based strategies for interactive visual presentation of information that enable people to explore, discover, and learn from vast quantities of data. Learn to analyze, design, develop, and evaluate new visualizations and tools. Discuss design principles, interaction strategies, information types, and experimental results. Research-oriented course surveys current literature, and group projects contribute to the state of the art.

PRE: 2604. (3H, 3C).

II. LEARNING OBJECTIVES

Having successfully completed this course, students will be able to
- critique existing interactive visualization techniques from the research literature and tools from the trade;
- apply existing visualization tools to analyze a data set;
- design new information visualizations for given data, users, and tasks, while balancing design tradeoffs;
- design and implement new visualizations;
- evaluate visualizations with user studies;
- identify a current research need in the field of information visualization, produce a proposal for a solution, and develop the solution.

III. JUSTIFICATION

As computer systems are increasingly designed to store larger quantities of information, it is equally important that these systems be designed to present this information to people in an effective manner. It is critical that information system designers, especially those concerned with the human interface to the system, understand the issues in the design, development and evaluation of interactive information visualizations. Information presentation is fundamental to the study of Human-Computer Interaction (HCI). This course also deals with the high level organization of information that is fundamental to Computer Science.

This course is offered at 5000 level for graduate credit. This is a research intensive course covering a fairly new field in computer science and HCI, and requires students to read and critique the current research literature as well as propose and conduct a research project to contribute to the field.

IV. PREREQUISITES AND COREQUISITES

CS 2604 is the prerequisite because students taking this course will need to be well grounded in basic knowledge of data structures and fluent in at least one programming language.

V. TEXTS AND SPECIAL TEACHING AIDS

Supplemental texts:

Spence, Robert. INFORMATION VISUALIZATION. New York, New York: ACM Press and Addison-Wesley, 2001. xvii, 206.

Card, Stuart K., Jock D. Mackinlay, Ben Schneiderman. READINGS IN INFORMATION VISUALIZATION: USING VISION TO THINK. San Francisco, California: Morgan Kaufmann Publishers, 1999. xvii, 686.

VI. SYLLABUS

		Percent of Course
1.	Presentation and Interaction Principles	40
	·Basic Design Principles	
	·Theory	
	·Visual Overview Strategies	
	·Multiple View Strategies	
	·Distortion View Strategies	
	·Filters, Queries, Lens	
	·2D vs 3D Views	
	·Truth in Visualization	
2.	Information Types	40
	·1D, 2D, 3D Data	
	·Multi-Dimensional Data	
	·Hierarchies and Trees	
	·Networks and Graphs	
	·Document Collections	
	·Workspaces	
3.	Visualization Development	10
4.	Empirical Evaluation	10
		100

VII. OLD (CURRENT) SYLLABUS
NA

VIII. CORE CURRICULUM GUIDELINES
NA

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

Department of Computer Science

The College of Arts and Sciences
660 McBryde Hall (0106), Blacksburg, Virginia 24061
(540) 231-6931 Fax: (540) 231-6075

Dr. Harlan B. Miller, Secretary
College of Arts and Sciences Curriculum Committee
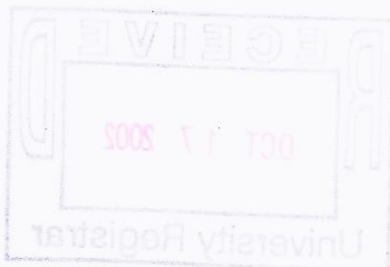C/o Department of Philosophy
CAMPUS 0126

February 18, 2002

Dear Harlan,

Please find enclosed a course proposal for CS5764, Information Visualization. This course extends our course offerings into an important new area within our Departmental strength of Human Computer Interaction, and reflects the research and academic interests of some of our new faculty members who have joined the Department in the past two years. The resources to teach this course come from the availability of these new faculty members.

Sincerely,

Cliff Shaffer
Chair, Graduate Program Committee

Virginia Tech
1872
VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

Department of Computer Science

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College of Arts and Sciences Curriculum Committee
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