Symposia

STRUCTURAL BIOLOGY

Friday, May 1

1:30   WELCOME AND INTRODUCTORY REMARKS

1:45   D-3-PHOSPHOGLYCERATE DEHYDROGENASE: REGULATION AND MUTATION

Jessica K. Bell & Leonard J. Banaszak, Department of Biochemistry, University of Minnesota, Minneapolis, Minnesota 55455

E. coli D-3-phosphoglycerate dehydrogenase [PGDH] catalyzes the first commited step in the phosphorylated serine biosynthetic pathway and is allosterically inhibited by serine. Among allosterically regulated oligomeric enzymes, PGDH and glycerol kinase [GK] share a unique donut-shaped quaternary structure and are both V-type regulated. PGDH is a tetramer in which the monomer [44kDa] consists of three domains, the substrate binding domain [res. 7-107, 295-336], nucleotide binding domain [108-294], and the regulatory binding domain [337-410]. Two distinctly different interfaces are present in the tetramer: i) formed between the nucleotide binding domains and ii) formed between the regulatory binding domains. The structure of the enzyme with the inhibitor present revealed that the serine molcules bind across the regulatory interface. Two mutants address the role of the regulatory domain interface. The first, a PGDH truncation mutation that includes res. 1-336 [nucleotide and substrate binding domains, PGDH-NSD], was constructed by PCR using the wildtype serA gene. This mutant removes the regulatory domain. The expressed and purified PGDH-NSD has a MW determined by ESMS of 35871.28 daltons. The PGDH-NSD is active and kinetic studies are underway to determine K_m and K_{cat} values. Structural studies are also underway, with two crystal forms already identified. The second mutant, L351W PGDH, introduces a large aromatic residue at the regulatory domain interface which is thought to interfere with serine binding and the conformational/ domain movement associated with inhibition. The L351W PGDH mutant has K_m and K_{cat} values similar to the native enzyme but its IC_{50} for serine inhibition is 10,000mM versus wild type 5µM. Structural studies of this mutant have begun with the hope of crystallizing an enzyme form which will reveal the conformation of the active enzyme.

2:15   CAN RNA ACT AS A DECOY FOR NF-κB?

Lori L Lebruska, Investigator's Lab: Dr. Jim Maher, Mayo Clinic, Rochester, Minnesota

Goal: We wish to identify RNA molecules that inhibit transcription factor NF-kB.

Rationale: An example of the ability of RNA to act as a decoy for a transcription factor exists in nature. In X.laevis, 5S rRNA gene transcription by RNA pol III is activated by the binding of TFIIIA protein to the DNA template. As 5S rRNA is transcribed, the 5S rRNA product binds TFIIIA, resulting in the inhibition of transcription. We wish to extend this concept to NF-kB, a transcription factor that binds to enhancer sequences in DNA thereby activating gene expression. NF-kB activates genes involved in the immune response and inflammation. NF-kB also regulates gene expression in certain viruses (HIV-1). Selecting RNAs that bind to the DNA binding domain of NF-kB may provide a method to inhibit transcription of NF-kB-dependent genes.

Approach: Identification of potential RNA decoys involves synthesizing a library of random single-stranded sequence DNAs (N60) flanked by known sequences. By transcribing this library and using a technique known as SELEX, we have selected RNA molecules that bind NF-kB with high affinity (Kd~1 nM). Characteristics of protein/DNA/RNA interactions

have been determined by gel shift, nitrocellulose filter binding, and RNA boundary assays. Long-term goals include investigating the effect of selected RNAs on in vitro transcription with templates that are activated by NF-kB. In addition, expression of decoy RNA in cells will allow study of the effects of decoy RNA on NF-kB-activated transcription.

Preliminary Results: The p50 subunit of NF-kB has been cloned for protein expression in bacteria. The overexpressed protein was then purified and the Kd for the specific DNA target sequence was determined using nitrocellulose filter binding and competition assays. The SELEX procedure has allowed identification of an RNA molecule that binds to p50 homodimers with high affinity. Subsequent studies have demonstrated that this RNA competes with duplex DNA for p50 homodimer binding.

3:00   WEB-BASED GRADUATE SCIENCE EDUCATION AT A DISTANCE

Lynda Ellis, Department of Laboratory Medicine, University of Minnesota

The authors have developed BioC/MicE 5-309, Biocatalysis & Biodegradation (URL = http://www.cee.umn.edu/biodeg/), a University of Minnesota course offered completely over the Internet at the graduate level through Independent Study. This course is based on the award-winning University of Minnesota Biocatalysis/ Biodegradation Database (UM-BBD) (URL = http://www.labmed.umn.edu/umbbd/index.html). The UM-BBD contains information on microbial biocatalytic reactions and biodegradation pathways for primarily xenobiotic, chemical compounds. Under the supervision of the instructors, students, among other assignments, develop Web pages on microbial catabolic metabolism of environmental pollutants. If these pages pass further review, they may become part of the UM-BBD.

BioC/MicE 5-309 was the first graduate-level science course to be offered completely over the Internet at the University of Minnesota. The course was first offered in Winter, 1997 to five students and is being repeated now in Winter, 1998 to 10 (the course limit). Fully sixty percent of the current students are out-of-state and half are not currently enrolled in a degree-granting program. Based on our experience with this course, we will discuss the potential and challenges of distance-based science education at the graduate and professional level.

3:45   INCORPORATION OF RESEARCH PROJECTS IN BIO-CHEMISTRY LABS AT MANKATO STATE UNIVERSITY

Theresa A. Salerno and James E. Rife, Box 40 - Mankato State University Mankato, MN 56002-8400

The biochemistry program at Mankato State has a three quarter sequence of biochemistry courses each with an associated lab. In the first quarter lab, students work on a group project that involves protein purification and characterization. The current exercises have been modified from faculty research and involve characterization of plant serine protease inhibitors. The second quarter lab focuses on techniques used in the molecular biology lab. Research based projects such as the analysis of ethylene induced mRNAs have been incorporated in this lab. In the third quarter lab, students are given more responsibility for designing the experiments. They work together in research teams addressing general problems assigned to them by the instructor. The problems are changed every few years and are based on faculty research. Projects have included characterization of bacterial and plant serine proteases and investigation of beta-glucanase activity induced in plants by ethylene. Objectives of this lab are to expose the students to the process of designing experiments, to reinforce their biochemistry lab techniques, to strengthen their proficiency in data analysis and presentation, and to cultivate teamwork skills.

4:30 ROUNDTABLE DISCUSSION: "HOW T O TEACH UNDERSTANDING OF BIOLOGICAL STRUCTURES AND THEIR FUNCTIONS"

Saturday May 2

1:30 ROLE OF THE PORTAL REGION OF ADIPOCYTE LIPID BINDING PROTEIN IN LIGAND BINDING KINETICS

Jeremia Ory, Department of Biochemistry, University of Minnesota

Adipocyte lipid binding protein (ALBP) is a 14.5 kDa beta-barrel protein which binds various fatty acids with nanomolar affinity in a large internal cavity. Kurian and coworkers as well as Kane and Bernlohr have recently shown the fluorescent probe 1-anilinonaphthalene-8-sulfonate (ANS) also binds ALBP with similar affinity. Formation of the ALBP:ANS complex is accompanied by an increased quantum yield and a blue shifting of the excitation/emission maxima. Measurement of the decrease in ANS fluorescence as it is displaced from ALBP is a simple and accurate measure of dissociation constants for various ligands. Relatively little is known about the binding mode of ANS to ALBP, though it is assumed to bind in the cavity similar to native fatty acid ligands. To address this, the crystal structure of the ALBP:ANS complex has been solved to 2.6 A (symbol for Angstroms) resolution (Rfactor/Rfree = 0.196/0.261). ANS binds inside the ligand binding cavity as expected, though in an orientation atypical of native ligands. The proposed site of ligand entry and exit, also called the portal region, makes extensive contacts with the ANS molecule. Previous work has shown the portal region to be essential in regulating protein:ligand affinity (Ory et. al., 1997, Simpson and Bernlohr in press). To illustrate the role of the portal region in ligand affinity and binding kinetics, we present the crystal structure of the ALBP:ANS complex and compare it to other ANS:protein complexes in the literature. ANS binding to both native ALBP and a mutant form shown to destabilize the portal region (V32D/F57H) has been analyzed by stopped-flow kinetics. The data supports the theory that the portal region exerts an effect on the ligand binding reaction. This project is supported by a grant to LJB from the NIH (GM13925).

2:15PM ASSEMBLY STUDIES OF THE PLANT VACUOLAR PROTON-TRANSLOCATING ATPASE

Cynthia Bauerle, Catherine Magembe, and Donald P. Briskin (Hamline University, St. Paul, MN, and Dept. of Crop Sciences, University of Illinois-Urbana/Champaign)

V-type proton-translocating ATPases (EC 3.6.1.3) are electrogenic proton pumps involved in acidification of endomembrane compartments in all eukaryotic cells. V-type H+-ATPases (V-ATPases) from various species consist of 8-12 polypeptide subunits arranged into an integral membrane proton pore sector (V0) and a peripherally-associated catalytic sector (V1). Several V-ATPase subunits are functionally and structurally conserved among all species examined. In yeast, a 36 kDa peripheral Vma6p subunit is required for stable assembly of the V0 sector as well as for V1 attachment. Vma6p has been characterized as a non-integrally associated V0 subunit. A high degree of sequence similarity among Vma6p homologues from animal and fungal species suggests that this subunit has a conserved role in V-ATPase function.

We have characterized a novel Vma6p homologue from red beet tonoplast membranes. A 44 kDa polypeptide cofractionated with V-ATPase upon gel filtration chromatography of detergent-solubilized tonoplast membranes, and was specifically crossreactive with anti-Vma6p polyclonal antibodies. The putative 44 kDa homologue appears to be structurally similar to yeast Vma6p and occupies a similar position within the holoenzyme complex. The 44 kDa polypeptide was partially dissociated from tonoplast membranes by treatment with the chaotrope KNO3 under conditions in which V1 subunits are also released. Dissociation of the 44 kDa subunit was ATP-dependent, and thus appeared

to be correlated with the active state of the holoenzyme. Results will be discussed in terms of "assembly" models for regulation of V-ATPase activity.

3:00 REFRESHMENT BREAK AND MAYO AWARD PRESENTATIONS

BUSINESS AND ECONOMICS

11:00 BUSINESS ETHICS IN CHINA: A COGNITIVE MODEL

Li Zhang, Mankato State University, Box 14, Mankato, MN 56002

China, with its rapid economic growth and huge population, has been an attractive target market for U. S. companies. However, many companies operating in the Chinese market experience conflicts regarding ethical issues. Better understanding of the foundation of business ethics in China would help resolve such conflicts. This article attempts to formulate a cognitive model that lends insights to modern business ethics in the Chinese market. Specifically, the model identifies the following major factors as antecedents that influence the formation of ethical standards: (1) traditional ethics inherited from ancient Chinese philosophers; (2) legislation and political ideology reflected in the propaganda conducted by the government; (3) ethical/unethical conducts in the society since the economic reform; (4) organizational factors; (5) ethical standards of foreign countries. The model also predicts that different ethical standards lead to ethical or unethical business conducts. These conducts may have either positive or negative consequences. These consequences feed back to modify both the subsequent ethical standards and the subsequent business conducts.

11:20 USE OF EXPORT INTERMEDIARIES BY U.S. MANUFACTURERS DESIRING TO SELL THEIR PRODUCTS IN CHINA: A DESCRIPTIVE FIELD STUDY

Heli Wang and Mary Gander, 324 Somsen Hall, Winona State University, Winona, MN 56987-6838

A manufacturer is often forced to rely heavily on an EMC (Export Management Company) to help them successfully reach markets in a foreign country whose culture, language, policies, procedures, and legal-economic system they do not understand.

Though there are many variations in these firms, their role generally involves helping a domestic client make business contacts in a foreign country in an effort to sell their products abroad. In addition to identifying and characterizing a foreign market for a client, these firms may also assist by offering a range of other services.

The authors investigate U.S. export intermediaries specializing in assisting U.S. small to medium sized manufacturers of industrial equipment, who desire to begin selling their products in China. Methods of inquiry include field research, telephone interviews of both export intermediary firms and their manufacturing-clients, and an additional, more focused literature search. The paper illuminates for both the academic and for the potential EMC client, what has been found to date and then, more specifically, what can help the U.S. small or medium sized manufacturer of industrial equipment desiring to do business in China, to ensure that they are more successful in choosing and using an EMC effectively.

11:40 POLITICS OF THE MOST FAVORED NATION STATUS TO CHINA

Dr. M. Anaam Hashmi, MSU Box 147 College of Business, Mankato State University, Mankato, MN 56002

China had adopted a fairly restrictive trade policy from the inception of the People's Republic, especially during the Cultural Revolution period (1965-76) when self- sufficiency

became a political goal. After the death of chairman Mao, China entered into a transition period of 1976-1979. In 1978, Four Modernizations originally suggested by Premier Zhou En-lai, became the key policy goal: Political and economic order was reestablished after the Cultural Revolution. In 1979, the Open Door policy was announced which is still a key factor in China's economic and financial planning.

The Chinese economic reform that started in late 1970s produced widespread benefits to China as well as to the world. The fast economic growth in China's domestic market and its production of goods for export triggered a rapid increase in trade with the United States. In order to create a favorable trade relations between the two countries, the United States granted most-favored-nation (MFN) status to China on a year-to-year basis in 1980. This provides for low, non-discriminatory tariff treatment of Chinese exports to the United States. China greatly benefited from this policy and the total value of exports and imports rose during 1980-97.

After careful analysis of trade figures between China and the United States and major trading partners of both countries, it is evident that China has taken full advantage of the Most Favored Nation (MFN) status granted by the United States in 1980. Chinese enterprises and U. S. multinational corporations operating in China are benefited, by increasing their exports to the United States. The increasing trade deficit with China has become a serious issue for U.S. policymakers. At the same times, many political groups from extreme left to extreme right are trying to send China a message because of their human rights violation and political beliefs. Also, China has many allies in the business community including the retailers selling cheap Chinese products, corporations operating in China, and corporations exporting goods and services to China. Economic realities and effective lobbying will help China to maintain MFN status in the near future.

NOON   CONSTRUCTING A SURVEY-BASED INPUT-OUTPUT TABLE: THE IRISH EXPERIENCE
Robert Garhart, University of St. Thomas, Mail #4170, 2115 Summit Avenue, St. Paul, MN 55105

Due to budgetary considerations, most regional level input-output tables are based on some form of "nonsurvey" method, adapting a national table to the regional economy. The author was fortunate to be involved in the construction of an input-output table for the southwest of Ireland (consisting of two counties, Cork and Kerry), based largely on survey data obtained from an extensive survey of firms in the region. Other data were available from the Central Statistics Office of Ireland, including detailed information on household purchases from a Household Budget Survey. The survey instrument is presented, along with a description of the sampling strategy. Other data sources are summarized and an aggregated version of the input-output table is presented. A description of the regional economy based on the table is provided . This includes rankings of sectors by output, employment, income, value added and exports. Output, income and employment multipliers are also provided. Plans for future research based on this unique data set are described.

12:20 - 1:00   LUNCH BREAK

1:00   METHODOLOGICAL ISSUES IN TESTING THE SIGNIFICANCE OF BETA
David W. Kesler, Winona State University, Department of Economics and Finance, Winona, Minnesota 55987

The Capital Asset Pricing Model (CAPM) introduced in the 1960s shows beta[1] is the proper measure of risk for an asset that is part of a diversified portfolio. Within the last two decades, beta has gained wide acceptance among practicing financial professionals. However, in the academic community, beta's popularity has decreased. Empirical work by Fama and French (FF) (1992) shows that beta is statistically insignificant in explaining historical stock returns and other variables such

as company size and book equity to market equity ratio have higher significance.

Since beta is not known, it must be estimated. Early empirical researchers of the CAPM, e.g. Fama and MacBeth (FM) (1973), found that portfolio betas can be estimated with less error than the betas of individual assets. Therefore, portfolio betas (not individual asset betas) have been used to test the sign)ficance of beta. The FM methodology has become the standard technique for testing asset return models. FF use portfolio betas to arrive at their conclusions.

In this paper, simulation evidence is given that shows the conclusions of FF may be due, in part, to their use of the portfolio methodology for estimating betas.

Also examined is the use of generalized least squares (GLS) regression versus ordinary least squares (OLS) regression in testing the relation between beta and returns. This was suggested by Kandell and Stambough (1995).

[1] Beta is the covariance between an asset's return and the return on the entire market divided by the variance of the market return. Intuitively, it is the sensitivity of an asset's return to the return on the market. Empirically, it is estimated as a time-series regression slope.

1:20   ESTIMATION OF STOCHASTIC COST FRONTIER MODELS: THE CASE OF NEBRASKA SCHOOL DISTRICTS
M. Kabir* and J. E. Anderson**, *Dept. of Bus & Econ, Concordia College, 901 8th St. So.. Moorhead. MN 56562, **Dept. of Economics, University of Nebraska – Lincoln, Lincoln, NE 68588

In this paper we describe stochastic cost frontiers, their application, and results of estimation for K-12 Nebraska school districts. The two-equation cost frontier model, where explicit modeling of cost inefficiency has been incorporated, appears to be superior to the one-equation cost frontier model The results of estimation indicate that inefficiency exists among school districts. As a result, the standard ordinary least squares (OLS) estimation procedure is not appropriate. Moreover. evidence of non-neutral shifting of the cost frontier with respect to the interaction between teachers' experience and scale of operation further corroborates that OLS cannot even indicate the shape of the cost frontier. We find that scale of operation, graduation rate, teacher's salary and a measure of special-need students are important determinants of cost structure. In explaining inefficiency, the interactive variable has explanatory power. In addition, efficiency estimates for individual school districts, estimated on the basis of the corresponding cost frontiers, has been used to make a ranking of the 274 school districts analyzed.

With this model, we have explained an approach which can be employed to improve the cost indices used in the formulation of typical state aid formulae to address fiscal disparities among school districts. We have further demonstrated that the composite error term used in the frontier model provides extra information about the operation of school districts which can be put to use for improving state aid formula. Incorporation of a time variable in the cost function as well as in the inefficiency model has also made it possible to observe that there has been a technological regression over the period of analysis from 1989-90 to 1991-92. However, Nebraska school districts appear to have been successful in terms of enhancing cost efficiency over the study period. Thus. this paper documents the potential of cost frontiers to deliver better insight about the educational cost structure and to contribute more effectively in the effort to minimize fiscal disparities among Nebraska school districts.

1:40   EVA AND COMPANY MANAGEMENT
Dr. David Vang, Associate Professor of Finance, University of St. Thomas, 2115 Summit Ave, St. Paul, MN 55105

Economic Value Added (EVA) is a management process that supposedly makes managers and employees behave in ways

that maximize shareholder wealth. The leading proponent of this process is the Stern Stewart & Co. consulting firm. Basically, EVA uses principles of modern finance theory to develop reporting and incentive plans which encourage value maximization. Without a grounding in finance it is quite possible for compensation plans to unintentionally encourage activities which destroy value.

2:00 INVESTING AND ITS CONTRIBUTION TO THE HISTORY OF FINANCIAL RISK MEASUREMENT

Dr. David Vang, Associate Professor of Finance, University of St. Thomas, 2115 Summit Ave., St. Paul, MN 55105

This paper describes the concept of a long-short portfolio and how its risk would be pictured in the historical context of Modern Finance Theory and efficient markets.

2:20 ANIMATED GRAPHICS FOR TEACHING UNDERGRADUATE ECONOMICS

Craig S. Marcott, University of St. Thomas, Department of Economics, 2115 Summit Avenue, St. Paul, Minnesota 55105

This presentation will demonstrate several of the author's *Mathematica* notebooks and packages that feature animated diagrammatic economic models. The animations have been successful in engaging students who are naturally reluctant to confront difficult material. Active learning is encouraged by allowing students to change parameters, and simple VCR-like controls can be used to change animation direction and speed (including a pause button). The animations make fairly complicated ideas (e.g., the Slutsky equation, Jacob Viner's problem) visually apparent to quantitatively unsophisticated students. The long-term goal of the project is to provide animated versions of most of the diagrams included in introductory and intermediate Microeconomics and Macroeconomics courses. Over two hundred animations have already been written covering topics such as cost and production, consumer choice, circular flow, the Slutsky equation, labor economics, macroeconomics, expected utility, income inequality and welfare economics. Approximately fifty animations can be viewed at the URL http://milkweed.econ.stthomas.edu/csmarcot/my.html. This web page also provides a link to download MathReader, a free program that can be used to view the notebooks and render the animations.

2:40 THE DIVERSITY OF DIVERSITY; WORK VALUES AND TEAM PROCESSES

Jennifer J. Dose, Assistant Professor of Management, Division of Social Sciences, University of Minnesota - Morris, Morris, MN 56267

As a result of downsizing, re-engineering, and the need to integrate information, work groups and teams make many of the decisions once generated by management. Additionally, current demographic, social, and political forces are moving organizations toward employing a more diverse labor pool. The combination of these two factors means that heterogeneous groups of individuals will be working very closely together.

The benefits and drawbacks of work group heterogeneity for decision-making have been debated at length. The relevance of work values and work values similarity for effective team processes has been largely ignored, however. Particularly in the early phases of group formation, commonality in work values can foster effective group norms and working relationships. It is likely that work values similarity in an otherwise diverse group can mitigate against the negative effects of demographic diversity.

Work values are proposed to contribute to effective group processes in several ways. First, salience of member values will reduce the salience (and impact) of demographic characteristics. Perceived values similarity will increase the likelihood that team members will experience the sense of being part of a single ingroup (as opposed to subgroups).

Values similarity will lead to greater cohesiveness, which in turn will result in reduced conflict.

In terms of the actual business of the group, values similarity will facilitate procedural norm development, trust, and information exchange. Finally, within the process of decision-making, influence attempts will be more successful, allowing groups to achieve consensus.

The impact of various types of values is also discussed.

3:00 - 3:20 REFRESHMENT BREAK

3:20 USING CORE/RISK ANALYSIS TO ASSESS ORGANIZATIONAL PERFORMANCE

Jack Militello and Mick Sheppeck, University of St. Thomas, Department of Management, 2115 Summit Avenue, MCN6041, St. Paul, MN 55105

No commercial enterprise will consistently achieve above average performance over the long run unless it is able to create and sustain a competitive advantage in its markets. To determine appropriate management interventions to gain a sustained competitive advantage, the firm ought to assess its core competencies in relationship to its risk exposure

This abstract introduces an analytical framework which is a variation on the SWOT analysis and uses it to determine where a firm stands in relation to the sustainable competitive advantage it is working to attain. The proposed core/risk framework allows managers to answer the following questions: Does the firm enjoy a sustainable competitive advantage in its markets? How vulnerable is the firm if its advantage is relatively insecure? If the firm does not enjoy a sustainable competitive advantage, how far is it from attaining it? What investments in technology, human development, research, and management processes would be required to secure a better competitive position for the firm?

The core competencies of a firm can be found in its purpose or mission; its management of fixed assets; its adaptation to technology; how it determines sound financial performance; and how it nurtures its human capital and know-how. Risk exposure is determined by how well the firm builds alliances with customers and suppliers; develops economies of both scale and scope; and dominates its competitive markets.

Application of the core/risk assessment framework will assist the firm in making short-term management adjustments; establishing a basis for long-term strategy; and determining modes of intervention or use of management tools that would be most advantageous for competitive positioning.

3:40 WHAT THE "TYPICAL" EMPLOYEE LOOKS LIKE: EVALUATIONS IN THE FIRE INDUSTRY

Michael A. Sheppeck, University of St. Thomas, Department of Management, MCN6016, 2115 Summit Avenue, St. Paul, MN 55105

In an effort to describe the current skill base of Twin Cities employees, 714 supervisors across 22 job categories in finance, insurance, and real estate companies evaluated attribute levels shown by "typical" employees working for them using the Department of Labor's recently developed skill and work style elements. Factor analyses of the elements produced six skill and three work style dimensions. Results were tested using three job families: managerial, professional, and clerical. Due to the increasing demand for results oriented work styles in today's economy, it was hypothesized that skill but not style differences would exist among the families. However, significant differences were found among the job families on all dimensions: managers and professionals showed higher levels on the attribute dimensions than clerical employees. Nevertheless, the mean differences among the job families were smaller for the work style than the skill dimensions. Finally, cluster analyses produced groups of employees within each family showing distinctive patterns among the attribute dimensions. Three groups emerged within each family.

However, these nine groups approximated four more basic patterns of employee attributes based on position relative to the total sample mean for each attribute: 1) generally below average across the dimensions, 2) generally above average, 3) both below and above average, and 4) generally high. Each family showed at least two of the four basic patterns. These results suggest that a finite number of discernible employee attribute patterns exist, regardless of job family, and that each pattern represents a distinctive developmental challenge for organizations.

4:00   AN ANALYSIS OF THE INTERACTIONS OF THE UST MANAGEMENT DEPARTMENT'S CORE CURRICULUM OBJECTIVES, THE UST BUSINESS DIVISION'S CORE CURRICULUM SKILLS WITH THE GOALS OF THE UNIVERSITY'S UNDERGRADUATE CORE CURRICULUM GOALS

Daniel E. McNamara, University of St. Thomas, 2115 Summit Ave., Department of Management, McN #6064, St. Paul, MN 55105

This paper attempts to:

1. Examine the goals of the university's undergraduate curriculum

2. Define the organizational, professional, and mental skills acquired by our division's business students.

3. Analyze the relationship between #1 and #2.

4. Indicate areas of omission in the university's undergraduate core.

5. Demonstrate the development of our students' organizational, professional, and mental skills as they progress through our division's core.

6. Examine the goals for the Management Department's Core Curriculum

7. Analyze the relationships between #1, #2, and #6.

8. Analyze each course in the division's core curriculum as to the level of support it provides for the skills mentioned above.

9. Provide for each course an indicator as to the size and direction of the deviation from the average level of support determined in #8 above.

This analysis provides the basis for assisting our department in the following:

1. Revising our major field requirements to meet the objectives of the department, the division, and of the undergraduate curriculum

2. Developing mechanisms for assessing the extent to which the objectives of the department, the division, and the undergraduate curriculum are being met.

4:20   GRAMEEN BANK: THE SUCCESS STORY OF A MICRO CREDIT INSTITUTION

Fahima Aziz, Assistant Professor, Department of Management and Economics, Hamline University, 1536 Hewitt Ave., St.Paul, MN 55104

Grameen Bank, a micro credit institution of Bangladesh was established in 1983 to alleviate the sufferings of the rural poor and to empower them with the opportunity to participate in this process of poverty alleviation. Bangladesh is a patriarchal society with traditional perceptions and views of women's role in the society. Patriarchal societies often create asymmetries in endowments, opportunities and choices for women. In many facets of their lives, women face discrimination that keep them powerless and dependent in the society. Grameen Bank, on the other hand, targeted women as their main clients and provided them with opportunities for credit and income-earning productive activities.

The objective of my study will be to examine how Grameen Bank has affected the lifestyles and well being of rural women. Particularly, this study will examine female empowerment and social changes in the lives of rural Bangladesh. Several hypotheses will be tested. For example, greater participation of women borrowing from the Grameen Bank will lead to a) higher income in the household b) more power in the household decision making c) more control over fertility decisions d) higher use of health care services for self and family e) higher participation in electoral voting f) more years in education for self and family members, particularly for daughters g) decision making in marriages for sons and daughters, particularly the age when marriage takes place h) decision regarding a dowry (gift from bride's family to the bridegroom's family as a part of marital contract.

GEOGRAPHY

1:00   PROTECTING ECOLOGICAL CONTINUITY IN MINNESOTA

Rod Squires, Department of Geography, University of Minnesota, 414 Social Sciences, Minneapolis, MN 55455

Protecting species and landscape characteristics that we value has become a major goal of governments in Minnesota. Such a goal, involving mod)fication of human behavior, is achieved in a variety of ways. Using the big-stick approach, governments prohibit private activities that destroy plants and animals and their habitats and landscapes. Using the carrot approach, the same governments promote private activities that preserve species, habitats, and landscapes. Finally, governments manage public lands with preservation as part of a multiple-use goal and as the sole focus of management

1:20   THE EFFECTS OF DEVELOPMENT ON LAKE SUSTAINABILITY IN THE PINE RIVER WATERSHED

Jennifer S. Holl, University of St. Thomas, 2115 Summit Ave., St. Paul, MN 55105

Minnesota is at a crossroads for three different ecosystems, the prairie, hardwood forest, and coniferous forest. This unique landscape, along with the more than 15,000 lakes in the state, make settlement in the state desirable. The Pine River Watershed, which is located in central Minnesota, is an area that has seen increasing residential and commercial development, along with expanding agricultural development. An important factor in the purchase of a home in the area is the natural scenic beauty provided by the lakes and land cover. The not unexpected situation has arisen in which landowners wish to protect and preserve the natural beauty of the area. One indicator of environmental preservation is the quality of water in the lakes located within the watershed. This paper will discuss the history of the area, development that has and is occurring, and using Geographical Information Systems, it will discuss what some of the possible consequences of development are on lake water quality and how that affects lake sustainability.

Research and information from the Minnesota Department of Natural Resources, the Minnesota Lakes Association, the Minnesota Rivers Council, the University of Minnesota - Center for Urban and Regional Affairs, the University of St. Thomas - Department of Geography, and the Whitefish Area Property Owners Association are included, with permission, in this paper. Geographical analysis of the data support the conclusion that urban and agricultural development in the watershed has decreased water quality over the years and altered the sustainability of lakes in the area.

2:40 ORGANIZATIONAL CONFIGURATION AND LONG-TERM GEOGRAPHIC INFORMATION PROJECTS: SOME EXAMPLES FROM LAND CLASSIFICATION

Glenn Radde, Department of Geography, University of Minnesota, 414 Social Sciences, Minneapolis, MN 55455

The present century has witnessed many large data-gathering projects designed to collect, evaluate, and report geographic information of public lands. These projects, housed within particular agencies and possessing distinct characteristics, have been instrumental in solving a number of social problems. This presentation will examine several land class)ficabon projects from a different perspective, in terms of their methods, particularly the geographic problems that were studied, and their organizational context,. Such issues are important to the successful implementation of GIS (Geographic Information Systems) within government.

3:00 - 3:20 REFRESHMENT BREAK

3:20 A GEOGRAPHIC INFORMATION SYSTEM TO ASSESS THE DEMOGRAPHIC EFFECTS OF CHANGING A BUS ROUTE

Robert Werner, University of St. Thomas, Geography - LOR 306, 2115 Summit Ave, St. Paul, MN 55105-1096

Does cutting a bus route affect certain groups more than others? For example, would cutting a particular route disproportionally affect the elderly, the young, minorities, or the low-income? Similarly, would creating a new bus route provide service to certain groups and not others?

This presentation will give a methodology for assessing the demographic effects of changing a bus route. It begins by using Census Bureau street files to create the route as an entity in a Geographic Information System (GIS), then calculates a 3/4 mile buffer around the affected route. After overlaying the buffer and census block groups, demographics can be calculated inside and outside the buffer. The Kruskal-Wallis test is appropriate to test null hypotheses that there is no difference in race, age, or income according to location inside or outside of the 3/4 mile buffer. It is argued that Kruskal-Wallis is a useful test for inside/outside buffer problems because the test does not assume normally distributed observations, so is useful for skewed variables such as income.

Specifics will be given for how to do this with ARC/INFO and ArcView, using readily- available and inexpensive Census Bureau TIGER files and block groups. The presentation will also give a conceptual, overall view of how this method would work with any GIS, e.g. MapInfo.

This project was undertaken for the Red Cross of Ramsey County, but the method is suitable for anyone needing to assess how populations are affected by a transportation route.

3:40 INDIAN ACQUISITION OF OFF-RESERVATION TRUST LANDS FOR GAMING PURPOSES

Laura Hansen, Department of Geography, University of Minnesota, 414 Social Sciences, Minneapolis, MN 55455

With the great success of on-reservation gaming operations, Indian bribes are seeking to acquire new lands on which to open or expand off-reservation gaming establishments. The paper analyzes the history behind the process of Indian acquisition of such lands, including whether this action by bribes was anticipated, and how the Indian Gaming Regulatory Act's provision for taking off-reservation lands in trust for gaming purposes has been used, interpreted, and challenged.

4:00 THE CHANGING SCHOOL AGE POPULATION IN SAINT PAUL, MINNESOTA

Danielle Longerbone, Wilder Research Center, 1295 Bandana Blvd. N., Suite 210, Saint Paul, MN 55108

Saint Paul has seen a dramatic demographic shift in the population since 1980. Immigrants from all over the world, mainly Southeast Asia, have taken up residence in Saint Paul. This shift has been most notable in the public elementary and secondary schools. Administrators and teachers have faced the challenge of implementing new programs and adapting existing programs to meet the changing needs of students. Recent advances in Geographic Information Systems (GIS), most notably geocoding, has allowed administrative data to be geo-referenced and analyzed. The information provided allows decision makers to properly plan for capital improvements, desegregation and transportation issues. These data represent the 1996-1997 public school student population in grades K-12 living in Saint Paul.

4:20 DEMOGRAPHIC METHODS FOR GAY AND LESBIAN POPULATION STUDIES

Jerry Kramer, Department of Geography, University of Minnesota, 414 Social Sciences, Minneapolis, MN 55455

Using the Minneapolis-St. Paul Metropolitan area as context, I will outline the importance, as well as the possibilities and limitations, of performing demographic analyses of the "invisible" gay and lesbian communities.