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## IS 2009: Changing the Course for Undergraduate IS Model Curricula

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# IS 2009: CHANGING THE COURSE FOR UNDERGRADUATE IS MODEL CURRICULA

*Panel*

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## Abstract

*In this panel, the joint AIS / ACM Information Systems undergraduate model curriculum task force members together with other curriculum experts will be presenting and discussing the IS 2009 Curriculum Guidelines for Undergraduate Degree Programs in Information Systems document and soliciting IS community feedback regarding ongoing IS curriculum development efforts. As such, the panel discussion will center on the significant components embedded in the newly revised curriculum document. This includes: 1) an introduction to the key principles that guided the development of the document, 2) a list of features incorporated into the new model curricula, 3) the future of curriculum development efforts, and 4) proposed mechanism to solicit feedback from the academy.*

**Keywords:** IS undergraduate curriculum, curricula, IS education, IS courses

## Introduction

The purpose of the panel is to introduce the newest version of the undergraduate Information Systems model curriculum, IS 2009, to the academic Information Systems community. It is our intent to get approval for IS 2009 from both ACM and AIS by the time of the conference, and thus, ICIS 2009 will be a natural time for both formally launching the model curriculum and informing the community about it. In addition, the new model curriculum introduces several fundamental changes to both the curriculum itself and the process that is used to maintain the curriculum; therefore, it forms an excellent foundation for an interesting and potentially influential discussion. The proposed panelists include members of the task force that developed the new curriculum version and other faculty experts on curriculum and pedagogy. All are highly knowledgeable of IS curricula and represent a variety of perspectives on IS education. Included in this document are the four elements that are being presented by the panel: 1) a brief background, 2) key principles that guided the curriculum development process, 3) the key features of the

proposed IS curriculum, and 4) future of curriculum development efforts. This is followed by a discussion about the structure of the panel, which leads to an overview of the panel participants and finally concluding remarks.

## Background

*IS 2009 Curriculum Guidelines for Undergraduate Degree Programs in Information Systems* will be the latest report on the model curriculum work in the information systems field. The first IS model curriculum was introduced in the early 1970s, and an iterative curriculum development process has continued for the past 30 plus years (ACM 1983; Couger 1973; Davis et al. 1997; Gorgone et al. 2003; Longenecker et al. 1991). The Association for Computing Machinery (ACM) was involved from the beginning in the first efforts of the IS curriculum task forces. Other organizations, including AIS (Association for Information Systems), AITP (association of Information Technology Professionals) and IFIP (International Federation for Information Processing), have significantly contributed to model IS curriculum development. IS 2009 is the third such collaborative effort by the ACM and the AIS. Both the ACM and the AIS have global membership. This partnership, therefore, combines the breadth of pedagogical and curriculum interests of these organizations.

## Key Principles

In order to provide the first major revision of the IS undergraduate curriculum since IS'97 the current task force developed key principles that guided the revision process. The key principles that guided this effort were as follows (Topi et al. 2007; Topi et al. 2008):

1. The model curriculum should represent a consensus from the information systems community.
2. The model curriculum should be designed to help information systems faculty produce competent and confident entry level graduates well suited to workplace responsibilities.
3. The model curriculum should guide but not prescribe. Using the model curriculum guidelines, faculty can design their own courses and schools can design their own programs.
4. The model curriculum should be based on sound educational methodologies and make appropriate recommendations for consideration by information systems faculty.
5. The model curriculum should be flexible and adaptable to most information systems programs.
6. The model curriculum is not restricted to a specific domain; all information systems programs are, however, linked to some domain.
7. The model curriculum has a core of content that is common to all information systems programs.
8. The model curriculum specifies career targets that require both core and elective content.

## Features

The important features of the new model curriculum that will be discussed during the panel are as follows:

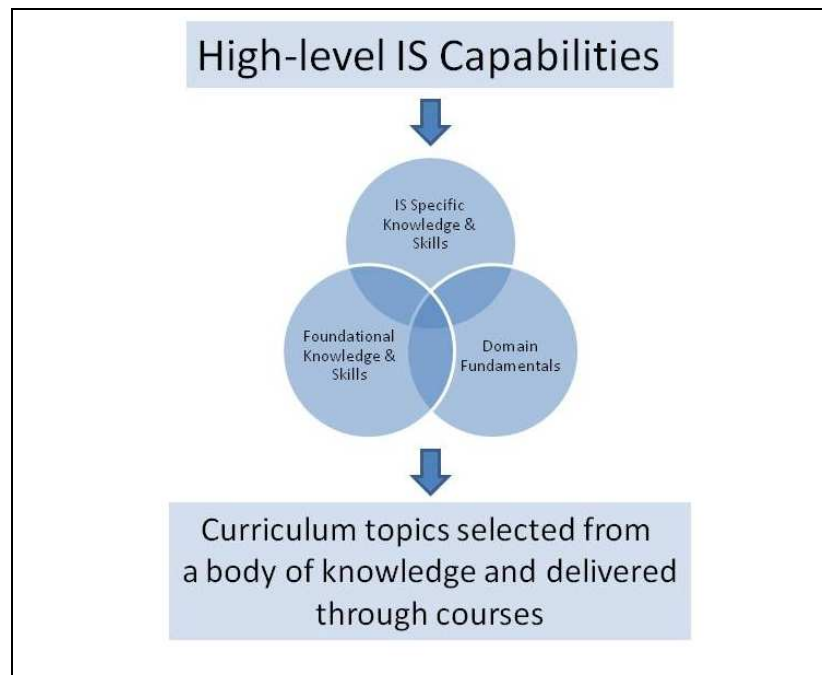
1. The broadening of the scope of the Information Systems discipline by specifying business as one of several possible domains to which the core Information Systems knowledge and skills can be applied. The essential point here is that Information Systems as a discipline has a lot to offer for many other disciplinary contexts beyond business and business schools; as such, we believe the discipline should claim this space before

others will do so. The curriculum structure is designed so that different domain contexts can be incorporated relatively effortlessly.

2. Significant changes in the curriculum outcome expectations, which reflect a number of external changes in the environment for which Information Systems programs prepare their graduates and internal changes in how the field perceives itself.
3. Separation of core courses from elective courses and introduction of career tracks.
4. The set of core courses that specify the material that all information systems programs should cover, including Information Systems Fundamentals, Data and Information Management, Enterprise Architecture, IS Project Management, IT Infrastructure, Systems Analysis & Design, and IS Management, Strategy, and Acquisition. One notable, intentional, and potentially controversial omission from this group is an Application Development / Programming course, which is not included in this version of the curriculum as a required course.
5. Acknowledging explicitly that much of the computing-related content in the Information Systems Body of Knowledge is not generated or defined exclusively by our own discipline but that we are, in practice, borrowing content from both Computer Science and Information Technology. This, in turn, allows us to focus more on the areas that are in the core of our expertise, such as Data and Information Management, Systems Analysis & Design, Enterprise Architecture, IS Project Management, and IS Strategy, Management & Acquisition.

### **High-Level IS Capabilities**

The new curriculum will include a significantly changed set of outcome expectations for graduating IS students entering the work-force. The new set of capabilities is not based on a single domain (such as business) that has been the case in past model curricula. Instead, the newest curriculum acknowledges the contribution that IS has made to disciplines other than business (e.g., health care, government, nonprofits, and so on). In order to do so, the curriculum specifies high-level IS capabilities that are driven by organizational needs and are more abstract and stable than particular knowledge and skills specified for the graduating IS students (Topi et al. 2007; Topi et al. 2008). Figure 1 shows how the high level-capabilities lead to the specific curriculum outcomes, which, in turn, generate the curriculum topics that can be delivered via courses.



**Figure 1. Overall Structure of the Basic Concepts (Topi et al. 2008)**

## Further Curriculum Development Efforts

The panel will also discuss the future of curriculum development efforts in Information Systems, including the following questions:

1. How is the emergence of the Information Technology discipline going to affect the curricula that Information Systems programs utilize at various levels of study (undergraduate, graduate, and doctoral)?
2. The Bologna process has fundamentally changed the higher education landscape in Europe. Will this process have an impact on IS education in the U.S. and elsewhere in the world?
3. Are the ideas introduced and initially tested by the IS 2009 task force regarding the use of Web 2.0 technologies for curriculum development implementable in practice? If so, what actions does the IS community need to take to put in place the structures that are needed to make Web 2.0 technologies work?
4. Linked to #3 above, how do we continue to motivate the best minds in the field to engage in efforts related to curriculum development?
5. What are the key lessons learned from the IS 2009 for future Information Systems curriculum development projects, including those at the master's level?

## Structure of the Panel

The panel will be structured so that it will first provide a brief introduction to the general characteristics of the model curriculum and then discuss the key features and core questions specified above at a more detailed level. There will be a carefully designed balance between panelist and audience contributions, ensuring that there will be a sufficient amount of time for true interaction and debate. The responsibility for leading the discussion on the key curriculum features and future issues will be distributed among a subset of the panelists. There will be a strong emphasis on the strategic curriculum issues that have a real impact on the IS discipline as a whole.

## Participants of the Panel

**Heikki Topi** is Associate Dean of Business for Graduate and Executive Programs and Professor of Computer Information Systems at Bentley University. His teaching interests cover a range of topics including advanced systems analysis and design, systems modeling, and data management. His current research focuses on human factors and usability issues in enterprise systems, information search and data management and the effects of time availability on human-computer interaction. His research has been published in journals such as *European Journal of Information Systems*, *JASIST*, *Information Processing & Management*, *International Journal of Human-Computer Studies*, *Journal of Database Management*, *Small Group Research*, and others. He has been actively involved in national computing curriculum development and evaluation efforts (including IS 2002, CC2005 Overview Report, and as co-chair of the IS 2009 curriculum revision project). He is a member of the ACM Education Board.

**Joseph S. Valacich** is The George and Carolyn Hubman Distinguished Professor of MIS at Washington State University. His teaching interests include systems analysis and design, collaborative computing, project management, and the management of information systems. He is currently co-chairing the task force designing IS 2009 Undergraduate Model Curriculum and served on the task forces designing IS '97 and 2002 as well as MSIS 2000 and 2006: The Master of Science in Information Systems Model Curriculum. He also served on the Executive Committee, funded by NSF, to define the IS Program Accreditation Standards and on the Board of Directors for CSAB (formally, the Computing Sciences Accreditation Board), representing the Association for Information Systems (AIS). He was the general conference co-chair for the 2003 International Conference on Information Systems (ICIS) in Seattle and was the vice-chair of ICIS 1999 in Charlotte, NC. His primary research interests include technology-mediated collaboration, human-computer interaction, mobile and emerging technologies, e-business, and distance education.

**Ryan Wright** is an assistant professor at University of San Francisco. He holds a Ph.D. from Washington State University in Management Information Systems. Ryan Wright's main research interests include ecommerce, online deception, and online privacy. He is published in the *Communications of the AIS*, *Group Decision and Negotiation* and other peer-reviewed journals. Also, Ryan has won university-wide and college-wide awards in recognition of his classroom excellence. In addition to academic achievements, Ryan's professional experience includes tenure as CTO

of a successful startup, time in management at Amoco Oil (now BP Amoco), consulting projects for the US Department of Commerce and expert testimony for the Attorney General's Office of Washington State.

**Kate M. Kaiser** has been involved in information technology (IT) as a practitioner, researcher, faculty member, and consultant. She is researching the future IT skill needs and the impact of offshore outsourcing from Ireland, Russia, and India through research grants from the Sloan and 3M Foundations and as a Fulbright Scholar. She is a member of the IS Model Curriculum Task Force. Kate has served on the faculty of McGill University, University of Wisconsin-Milwaukee, University College Dublin, and Marquette University and worked for Giga Information group on the Y2K team. She has also published in *MIS Quarterly Executive*, *MIS Quarterly*, *Communications of the ACM*, *Academy of Management Journal*, *Information Systems Management*, *Journal of Electronic Commerce in Organizations*, *Journal of High Technology Research*, *Information and Management*, and *Datamation*, among others. She is active in the Society for Information Management. Her BA and MBA are from Kent State and PhD from the University of Pittsburgh.

**J. F. Nunamaker, Jr.**, is Regents and Soldwedel Professor of MIS, Computer Science, and Communication and Director of the Center for the Management of Information at the University of Arizona, Tucson. He received his Ph.D. in operations research and systems engineering from Case Institute of Technology, an M.S. and B.S. in engineering from the University of Pittsburgh, and a B.S. from Carnegie Mellon University. He received his professional engineer's license in 1965. In a 2005 journal article in *Communications of the AIS*, he was recognized as the fourth to the sixth most-productive researcher for the period 1991–2003. Dr. Nunamaker received the LEO Award from the Association of Information Systems (AIS) at the International Conference on Information Systems (ICIS) in Barcelona, Spain, December 2002, and he was elected as a fellow of the AIS in 2000.

**Janice C. Sipior** is Professor of Management Information Systems at Villanova University. Her research interests include ethical and legal aspects of information technology, system development strategies, and knowledge management. She is chair of the Association for Computing Machinery - Special Interest Group on Management Information Systems (ACM-SIGMIS). She serves as Editor-in-Chief of *Information Systems Management*, Senior Editor of *Data Base*, Associate Editor of *Information Resources Management Journal*, and Editorial Board of *International Journal of Advanced Decision Sciences*.

**Niels Bjørn-Andersen** is a Professor at the Copenhagen Business School. He has published 20 books, more than 50 international journal articles and book chapters and more than 100 other publications. He has also presented his research more than 150 times at a variety of international conferences. In many of these, he was invited as the keynote speaker. He is past president of the AIS, conference chair for ICIS 1990 in Copenhagen and was presented the LEO Award in 2006 by the AIS for lifetime exceptional achievement in Information Systems.

**Christian Wagner** is Professor of Information Systems at City University of Hong Kong's Information Systems Department. He received his Ph.D. in Business Administration from the University of British Columbia in 1989. Thereafter he spent seven years as a faculty member at the University of Southern California, before joining City University in January 1996. Wagner specializes in the development and study of decision support systems, creativity support, and knowledge management with wikis and weblogs.

## Conclusion

The IS Model Curriculum is currently undergoing the final stages of its first major revision since the IS '97 report (Davis et al. 1997). IS 2009 addresses a number of contextual (e.g., globalization, advances in technology, new sourcing strategies, and so on) and structural changes as part of the revision process. This panel will present and discuss the *IS 2009 Curriculum Guidelines for Undergraduate Degree Programs in Information Systems* and solicit feedback regarding ongoing Information Systems curriculum development efforts.

## Acknowledgements

We would like to thank all of those that commented on earlier versions of the IS 2009 Model Curriculum either in past panels, emails or phone calls. Special thanks to Steve Alter and Andrew McGettrick whose substantial comments help guide the task force through the revision process. Also, thanks for those who contributed through the IS 2009 wiki hosted by Bentley University. Most of these question, comments or concerns were integrated into the final draft of the model curriculum. This was truly a community effort.

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