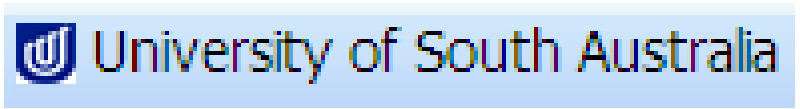
The MIT Information Quality Industry Symposium, 2007

INFORMATION QUALITY CURRICULUM DEVELOPMENT

AN INTERNATIONAL PERSPECTIVE

19 July 2007



Objectives of this presentation

- **Survey the area of IQ education throught the world to identify the extent of curriculum design and development in this area**
- **Work towards identifying the competencies, skills and knowledge for successful IQ programs and courses**
- **Provide continued thought leadership in this area**

IQ @ The University of Arkansas – Little Rock

UALR | University of Arkansas at Little Rock

Master of Science in Information Quality @ UALR

Established in 2006 by the UALR Donaghey College of Information Science and Systems Engineering in collaboration with the Massachusetts Institute of Technology Information Quality (MIT IQ) Program.

Prepares students to pursue careers such as Data Quality Manager, Data Quality Analyst, Data Quality Consultant, and Data Quality System Developer.

UALR Donaghey College of Information Science and Systems Engineering

Admission Requirements

- Baccalaureate degree from an accredited institution.
- Cumulative grade point average of at least 3.0 on a 4.0 scale.
- Graduate Record Examination general test section (GRE) or Graduate Management Admission Test (GMAT) scores.
- Completion of any remedial course work that may be specified by the department. Students seeking regular admission to the program are expected to have completed (with a grade of B or better in each course) course work or have professional experience equivalent to the following UALR courses:
  - IFSC 2300 Object-Oriented Software
  - IFSC 3320 Database Concepts
  - STAT 3352 Applied Statistics

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Program Structure

Required Courses

Information Visualization

Introduction to Information Quality

Information Systems Analysis

Total Quality Management & Statistical Quality Control

Database Systems

Information Quality Theory

Information Quality Tools and Industry Landscape

Elective 1 (one of the following)

Data Mining Concepts and Techniques

Advanced Data Mining

Database Security

Data Protection and Privacy

Elective 2 (one of the following)

Project and Change Management

Case Studies for Information Quality Professionals

Information Quality Policy and Strategy

Elective 3 (one of the following)

Graduate Project

Graduate Thesis

UALR Donaghey College of Information Science and Systems Engineering

IQ @ The University of Westminster, UK

University of Westminster

Information Quality at the University of Westminster

- There has been a great deal of change in the nature of IT employment in the capital

- However, the employment sector is in high growth in all areas of Business Intelligence. This is likely to continue because the management of intelligent information needs to remain close to the business centres because of its high change and business-centric nature

- We see information quality as a key step in the delivery of business intelligence

Portfolio of Business Intelligence MScs

- We perceive the employment sector as divided into the following key areas, all of which are vital to the successful development of business excellence
- **Information Quality**
  - Extraction of the right data at the right time for the right people
- **Decision Support**
  - Solving business problems efficiently
- **Data Mining**
  - Manipulating the data to obtain the maximum amount of information
- **Enterprise Information**
  - Identifying and meeting organisation objectives

Objectives of UoW IQ MSc

- A graduate of the MSc programme will:
  - formulate objectives for the business and ensure that the right information is available to meet them
  - understand the importance of data quality at all levels of the organisation
  - estimate correctly the accuracy/timeliness and criticality of information
  - establish both internal and external information quality standards and use strategies to ensure compliance
  - put in procedures to ensure quality standards, by selecting and using appropriate tools and management processes

MSc Information Quality **Details**

- The MSc programme runs in both full time and part time evening mode
- The course is running for the first time this academic year 2007/8
  - Contact
  - Karrant@wmin.ac.uk
  - or
  - Cav-admissions@wmin.ac.uk
- All Courses at the University of Westminster receive BCS (British Computer Society) Accreditation

The Business Intelligence Team at University of Westminster

- Dr Tereska Karran (Karrant@wmin.ac.uk)
  - Course leader for
    - **MSc Enterprise Information Systems**
    - **MSc Information Quality**
- Research interests:
    - **Business intelligence and business intelligent architectures**
    - **Public private partnership performance monitoring, Autonomous monitoring systems**
    - **Managing and monitoring data quality**
    - **Personalisation systems**
- Dr Thierry Chaussalet (Chausst@wmin.ac.uk)
- Course Leader for
    - **MSc Data Mining**
- Research Interests
    - **Data Mining applications**
    - **Medical informatics**
    - **Intelligent architectures**
    - **Monitoring systems**

The Business Intelligence Team at University of Westminster

- Charles Poulter (Poultec@wmin.ac.uk)
- Course leader for MSc Decision Science
  - Research interests
    - **Mathematical simulation and modeling**
    - **Statistical inferencing**

- Mike Rees (Reesm@wmin.ac.uk)
- Director of Knowledge Transfer
- Course Leader for MSci Business Intelligence
  - Research Interests
    - **Software architecture, Financial modelling, Time series analysis and forecasting**
    - **Clinical research systems, performance monitoring and risk assessment**

IQ @ Marist College, New York

MARIST COLLEGE

A Unique American Campus

A College Course

Data Quality in
Information Systems

Key Topics from Research

Measurement
Impacts
TQM
Data Entry
Policies
Error Detection
Dimensions
Change Processes
User Requirements

Information Overload
DQ Audits
Statistics
Data Mining
Data Warehouse
Analytic Models
Relational Algebra
DQ cost/benefit
Software tools

Three types of Capabilities

Interpretative—Self Reflective & social contexts

Change Mgmt, Impacts, Cost/Benefit, Error Detection

Adaptive—Significant interchange with environment

Measurements, TQM, Data entry improvement, User requirements

Technical—Mechanical Predetermined behaviors

Data Mining, Analytic Models, Data Warehouose, Relational Algebra, Statistics

Which Skills are most important?

- Interpretative—Self Reflective & social contexts

  Professor, executives & managers rated these skills as most important.

- Adaptive—Significant interchange with environment

  Consultants, Project Managers & analysts rated these skills as most important.

- Technical—Mechanical / Predetermined behaviors

  All rated technical skills as lowest importance

Importance of Skill Type varies by type of job.

Undergraduate curricula may focus most on adaptive and technical to identify user needs and measure user satisfaction and data quality.

Graduate Programs and Executive seminars may focus mostly on Interpretative so as to assess organizational implications and policies.

Course Objectives

- Understand DQ/IQ impacts and implications of poor data quality in technological projects,

- Understand TQM/TDQM, Information Products, Data quality dimensions & Process Control concepts,

- Recognize patterns of data and design deficiencies,
- Suggest DQ and IQ improvement plans,
- ROI / Business benefits of DQ Improvement plans for databases / warehouses,
- Role and importance of DQ in Decision Making.

Course Approach

REGULAR CLASSES:

- Study text / journal articles prior to classes
- Discuss w/ leading questions and etc.

FOUR PROJECTS:

- Total Quality Management (TQM),
- Use of DQI,
- Data Warehouse cleaning, and
- Information Quality Assessments.

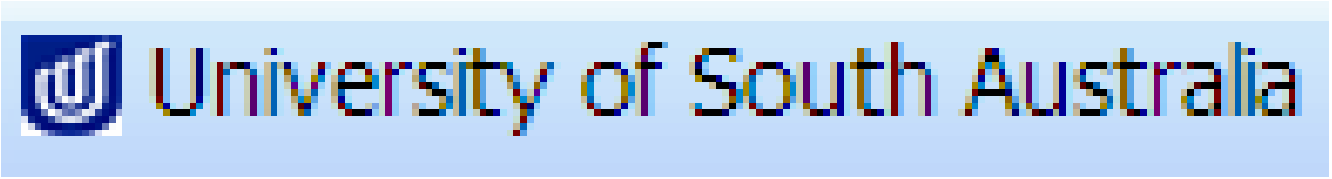
Information Quality Assessment

Objective: Perform an assessment of Information Quality in certain areas of XYZ Organization.

Systems: Various IS Applications / Systems.

Personnel: Management and staff from the User areas and the I T department.

IQ @ The University of South Australia



Master of Information Quality @ UniSA

- Masters level program
- Currently University approval track
- Had its genesis in the Strategic Information Lab & inspired by UALR
- Entry requirements similar to other masters programs
- Intend to offer it online
- Will be added to the Suite of programs offered in SE Asia

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Program Structure

Required Courses

- CIS Research Methods
- IT Project Management
- **Introduction to IQ**

  (Will be borrowed from UALR)
- **IQ Theory**

  (Will be Borrowed from UALR)
- Data Quality Tools & Methods
- Information Quality Policy and Strategy)
- Industry project/thesis

Electives (2)

- Two courses from existing elective course from CIS (e.g Knowledge Management in Organisations, Data and Web Mining, Digital Record-Keeping, Fundamentals of record keeping, Archival Management and Digital Preservation and Business Process Re-Engineering,
- Professional Topics in Data mining

University of South Australia

Summary points & Discussion

Some findings/observations

1. Only one program currently operating – UALR
2. Another Program will commence this Fall – UoW
3. One Program in the approval process
4. All of the above at the Masters level
5. A large number of single courses in IQ as components of other degree programs
6. The above courses are offered at the UG and PG levels
7. Most activity localised in the the United States, UK and Australia; not much activity in Europe or Asia

Some findings/observations

- Data/Information quality is taught as a component in the following courses
  - Data mining - Australian National University, Australia
  - Strategic security and IT-management - Lulea University, Sweden
  - Use of information - University of Michigan, USA;
  - Topics in information systems - Sate University of New York at Albany, USA

- Few other courses at different universities that teach data/information quality as an essential part of the curriculum in areas such as,
  - Geographic information systems
  - Nursing
  - Health informatics
  - Library science.

Questions for further discussion

1. 'To have a stand alone program.. Or not to have it'
2. What are the competencies that required for producing work ready practitioners (M. Heilfert, C. Fisher papers)
3. Where is the demand? Target markets?
4. Where are the career development opportunities?
5. What background (i.e. prerequisites) should students have to pursue the various forms of IQ education?
6. How much of the education should be hands-on? How much theory? What types of real customer/client interactions can be brought into the classroom?
7. How will we produce the next generation of researchers in IQ?
8. Where to from here? How can this group provide continued thought leadership in this important area?