

Data and Search Institute Seminar
Educating students in the Science of Search: what could curriculum look like?

Questions for Panelists and Suggested Jobs that Students will Take Upon Graduation

By Beth Plale, panel moderator
April 4, 2007

Questions for Panelists and Audience

1. What are some of the core skills that a bachelor's student of Science of Search should have? Master's student?
2. What forms could the education take short term? Long term?
3. Is it desirable to target professional masters?
4. Is it desirable to flow our students from our bachelor program into our master's program?
5. Is it desirable to encourage SoI to work out an 2+2 arrangement with Ivy Tech?

Jobs

For what jobs are we preparing students? Below are a few that present themselves based on conversations with industry partners. I took a stab at filling in areas of expertise that would strengthen a student's ability to succeed in the job.

Job 1: Technologist for data-driven high tech startup

Preparing students to work in high tech startup company doing complex events processing over high volume data streams for business applications. Example: technical staff (Rhysome)

Communication skills	Databases and query processing
Distributed systems (Web services)	P2P, overlay and network communication protocols
Data mining	Statistics
Business workflow and processes	Small company and entrepreneurial skills.
Master's degree built on technology BS	

Job 2: Discovery informatics IT staff

Prepare students to work on multidisciplinary teams in analysis and mining of domain phenomena. Ex: technical staff of life sciences research lab (Celera); Ex: advanced technology group of pharma company (Lilly).

Data mining and network algorithms	Information retrieval
Data indexing and storage	Statistics

Heterogeneous data collections	Distributed and P2P systems
Data transactions	Multidisciplinary project team experience
Master's or PhD built on technology BS	Multidisciplinary algos and/or models in one or more disciplines (i.e., bio, chem, econ)

Job 3: Staff Technologist

Prepare students to participate in policy discussions of long term storage and access to digital content at their companies and in public venues. Ex: CTO staff of large company, Ex: public servant or fellow at funding agency, or government office; Ex: senior staff of research computing at university;

Ethics of data sharing	Disclosure, protection, and privacy legislation: Sarbanes-Oxley, HIPPA
Policy issues of access and use of digital data collections	Digital library technology
Data indexing and storage	Data security
Information retrieval	Data recovery
Electronic signatures	Semantic tools and standards
Communication skills development	Master's degree built on LS, Info, or CS BS

Job 4: Knowledge Worker

These technologists and humanists will mine, analyze, and deliver data-driven content to small devices, institutions, and on company intranets. These workers will work in teams, understand and deliver on user needs. They will have strong communication skills and will use these skills to interact with customers and other parts of the business organization. They will be required to think creatively, and create value for the company in new ideas.

Example: content analysis software (Attenex)

Bachelors degree with tech or human emphasis	Communication and interpersonal skills
Information retrieval	Human interaction with data
Visualization of information and data	User-side reasoning: concept maps, case-based reasoning, user interaction
Semantic tools and standards	