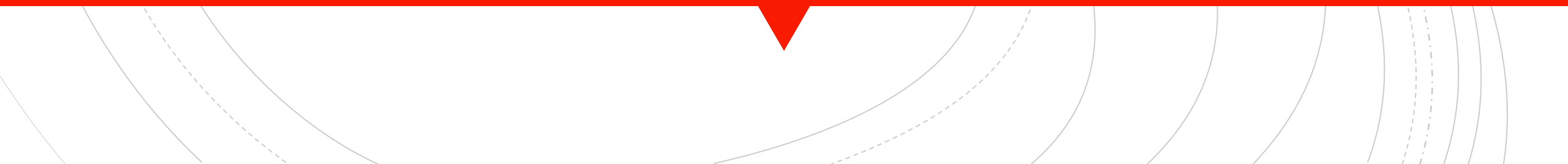


USG – UGA Georgia Informatics Institute
Data Science Knowledge Demand Analysis



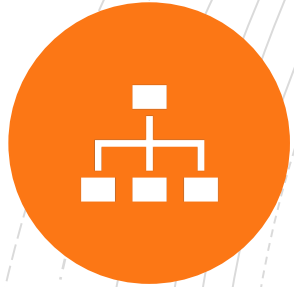
Validating Data Science Knowledge Demand

- **Data Science Knowledge Demand Analysis**
 - Overcome limitations of job data and address knowledge demand.
 - Interviewed data science practitioners.
 - Validated the employer value proposition.
 - Validated priority knowledge domain areas.
- **Data Science Knowledge Development Framework**
 - Developed a detailed data science knowledge framework.
 - Validated by 21 employers.
 - Mapping to career continuum.
 - Mapping case studies and knowledge development assets.
- **Data Science Knowledge Development Playbook**
 - Key findings.
 - Recommendations and strategies.

What We learned

- **Data science knowledge is in very high demand and requires new strategies and new models of knowledge development to meet demand and close the gap.**
- Data science is differentiated (think engineering)
- Data scientist is high demand and has plateaued. Data engineers are in high demand. Data manager/architect is by far highest in demand.
- New graduates lack experience with real problems and real data and handling messy data and complex problems. People who can “make sense of the mess” and enjoy problem solving are in high demand.
- People who fully understand and can communicate underlying principles and outcomes of data science (mathematics, AI, ML) in ways others can comprehend are in high demand.
- **Employers want to partner with universities to provide real data and real challenges.**

What's Needed



Scalable and accessible knowledge development opportunities



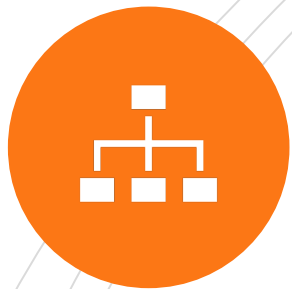
Centralized system-level asset to address knowledge demand



Sandbox and data-range for developing experience working with real data and solving real problems



Collaborative Research and Development with key industry sectors



Scalable and accessible knowledge development opportunities

Underway:

- Redesign/develop curriculum
 - Info 2000: now focuses on foundational machine learning, data engineering, and ML algorithms (revised)
 - Info 3000: Experiential Data Science Specialization: advanced data engineering and machine learning (new)
 - Info 4000: Experiential Data Science Specialization: cloud computing, platform technologies, integration of distributed data sources (new)
 - Integrated 'clinical' approach
- UGA courses (first wave)
- eCampus Collaborative system-wide Fall 2022

Recommended:

- Leverage the knowledge framework to create new and revise existing courses and programs
- Develop strategies to overcome limited access to SMEs/faculty
- Develop scalable knowledge development solutions to fully address the demand
- Differentiate knowledge development opportunities by vertical and career continuum
- Increased emphasis on liberal arts and essential skills
- Increased emphasis on contextual, situated, and simulated learning



**Centralized system-level
asset to address
knowledge demand**

Underway:

- **Case studies**
- **Real data**
- **Synthetic data**
- **Real problems and challenges**

Recommended:

- **Knowledge framework repository**
 - **Learning modules**
 - **Shareable learning objects**
- **Centralized and accessible systems, applications, and tools**
- **Teaching and learning assets differentiated based on learner need**



**Sandbox and data-range
for developing experience
working with real data and
solving real problems**



**Collaborative Research
and Development with key
industry sectors**



A physical and virtual data science-range and sandbox for the creation and conduct of data science projects



Collection and curation of data (both historical and real-time streaming data) and creating a synthetic dataset model with employers and especially industry participants where demand for knowledge has been escalating rapidly



Establish enterprise level advanced architecture and industry standard security and privacy protocols for application programming interfaces to reduce friction involved in sensitive collaborations



Physical and virtual spaces for synergistic collaboration, fundamental and applied research, knowledge development and innovation



Next steps

- Distribute the Data Science Knowledge Development Playbook
- Connect with USG institutions and data science degree programs
- Determine shared value propositions
- Define collaborative and synergistic strategies
- UGA: Staff the Data Science Hub (underway)
 - Hire Professor of Practice (Starts 10/1/21)
 - Hire GII fellow
 - Identify Director with administrative appointment
- Industry design team / Industry development team
- Establish industry standard architecture, systems, and tools
- Develop and deliver real projects with real (synthetic) data to develop experience