Supporting Research and Research Assessment (RAE) @ HKUST

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Hong Kong University of Science & Technology
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Outline

• Academic Needs
• Research Support Services @ HKUST
• Some Emerging Trends
• A Case Study on Research Assessment Exercise (RAE) 2014
Research Lifecycle - JISC
Academic Needs

• Creating Knowledge through Research
  o Faculty: Seek research partners, Write Grant Proposals, Conduct Research, Publish Research Output, Apply Patents
  o Research Students: Seek research supervisors, Conduct Research, Publish Research Output, Apply Patents
  o Undergraduates: Final year projects, capstone projects, Undergraduate Research Opportunity (UROP, IROP)

• Transferring Knowledge through Teaching & Learning
  o Faculty: Teach, Give research talks, Supervise research
  o Research Students: Give conference presentations
A Slice of Research Life:
Information Support for Research in the United States
Learn About Researchers’ Needs

• Surveys
  o Collection Surveys
  o LibQual
  o Ithaka

• Subject liaisons & outreach

• Serving on committees (e.g. Senate, Ranking, Data Science, RAE, Research Performance Analytics)

• Attending academic seminars and conferences

• Only 40% of US faculty considered the Library has an important role in providing active support to increase their research productivity (Housewright, et al., 2013)
HKUST FACTS AND FIGURES 2014

FIGURES AT A GLANCE
Opening
• October 1991
Faculty Members
• 627
Academic Departments and Divisions
• 20
Research Institutes
• 12
Research Centers
• 51
Student Enrollment
Total 13,079*
*data as of Sept 2013

Schools, Programs Offices, Institutes
• School of Science
• School of Engineering
• School of Business and Management
• School of Humanities and Social Science
• FYT Graduate School / FYT Research Institute

• XJTU-HKUST Joint School of Sustainable Development
• Interdisciplinary Programs Office
• HKUST Jockey Club Institute for Advanced Study
• HKUST Institute for Public Policy and Administration

STUDENT NUMBERS (AS AT SEP 2013)

<table>
<thead>
<tr>
<th>Field</th>
<th>Undergraduate</th>
<th>Postgraduate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>2,115</td>
<td>589</td>
<td>2,704</td>
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<tr>
<td>Engineering</td>
<td>3,113</td>
<td>1,914</td>
<td>5,027</td>
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<tr>
<td>Business &amp; Management</td>
<td>3,063</td>
<td>1,292</td>
<td>4,355</td>
</tr>
<tr>
<td>Humanities &amp; Social Science</td>
<td>192</td>
<td>265</td>
<td>457</td>
</tr>
<tr>
<td>HKUST Fok Ying Tung Graduate School</td>
<td>86</td>
<td>86</td>
<td>172</td>
</tr>
<tr>
<td>Interdisciplinary Programs</td>
<td>366</td>
<td>84</td>
<td>450</td>
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</table>

RECENT TRENDS IN THE NUMBER OF NON-LOCAL STUDENTS
Undergraduate and Postgraduate

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Non-Local</th>
<th>Local-HK</th>
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<tbody>
<tr>
<td>05-06</td>
<td>7,524</td>
<td>7,323</td>
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<td>06-07</td>
<td>7,323</td>
<td>7,132</td>
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<td>07-08</td>
<td>7,134</td>
<td>7,120</td>
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<td>7,204</td>
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<td>3,012</td>
<td>3,625</td>
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<tr>
<td>12-13</td>
<td>3,625</td>
<td></td>
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</tbody>
</table>
Rankings

Within the short span of two decades, HKUST has rapidly risen in the global academic arena and has ranked Asia’s number one in the QS University Rankings in 2013 and QS Top 50 Universities Under 50. While we don’t live for rankings, these latest international recognitions testify to our efforts dedicated to teaching and research. See below the overall excellence of HKUST.

1st
WORLD’S TOP 300 ASIAN UNIVERSITIES 2011 - 2013

1st
WORLD’S TOP 50 UNIVERSITIES UNDER 50 2013

7th
WORLD’S FASTEST RISING YOUNG UNIVERSITIES 2015

School of Science

School of Engineering

School of Business & Management

School of Humanities & Social Science
## About HKUST Library

- **Staff**  
  93 (25 librarians; 68 staff members)

- **Collection**  
  720,000 printed vols  
  46,500 periodical titles  
  357,000 microforms  
  40,000 media items  
  280,000 e-books  
  290 databases

- **Space/Seats/Rooms**  
  Floor space 12,350 m²  
  User seats 3,500 + 200 outdoor  
  Rooms 55

- **Usage**  
  Physical visits 2.1 million  
  Web visits 2.9 million  
  E-journal downloads 1.6 million  
  E-book downloads 1.0 million  
  Instruction sessions 289 sessions for 7,524 attendees
24-hour Learning Commons

- Collaborative Space
- Multimedia Production Studio
- AV Editing Suite
- E-learning Classroom
- Carrel
- Refreshment Zone
Research Support Services @HKUST

• Provided by a team of librarians
  o Subject librarians for 4 Schools
    ✓ Science, Engineering, Business & Management, Humanities & Social Sciences, Environment
  o Scholarly Communications Committee
    ✓ members from all library units

• Consultation with researchers, research students
  o Search process, specific databases, citation management, copyright issues

• Liaison with Research Offices (EVPPO, VPRGO, OPIR, PGO)
Research Support Services @HKUST

1. New Researchers Support
   • New Research Students & TA Orientation (2013/14 - 789)
   • Professional Development 6770 Series for Research Students (2013/14 - 22 sessions for 426 students)
     o Academic Integrity
     o Searching Science/Engineering/Business/HSS Literature Effectively
     o Additional Workshops for credit hours, e.g. copyright
   • New faculty one-on-one orientation
Research Support Services @HKUST

2. Infrastructure Support
   o Faculty Output Reporting System
   o Student Publications Reporting System
   o HKUST Institutional Repository
   o HKUST Scholarly Publications Database
     ✓ Create Scholar Profiles
     ✓ Harvest Faculty’s Publications
     ✓ Show bibliometrics, altmetrics
     ✓ Spotlight highly cited articles
     ✓ Graph co-authorship networks
HKUST Scholarly Publications Database

http://repository.ust.hk/ir/sp

- 500+ Scholar Profiles
- 58,000 publications
- Highly cited articles
- Searchable by
  - Format/Author
  - Subject/Journal
- With bibliometrics, altmetrics
- Viewed in 2014
  - 660,000 pages
- In university’s webpage
Publications and Bibliometrics

Number of documents indexed in this database is 1061.
- 674 documents are found in Scopus. They are cited 11815 times by documents in Scopus. The h-index is 54.
- 528 documents are found in Web of Science. They are cited 12644 times by documents in Web of Science. The h-index is 58.

View bibliometrics on Scopus: ID 36071953500
View bibliometrics on Google Scholar: Kwok, Hoi Sing
View bibliometrics on Google Scholar Citations
View bibliometrics on ResearcherID
Co-authorship Graph
3. Research Skills (mainly for Research Students)
   - Specific databases
     - Bloomberg, SciFinder Scholar, ThomsonReuters Eikon, Knovel, Scopus, WOS, ScienceDirect, etc.
   - Advanced information searching & retrieval
   - Writing literature review (CLE, CELT)
   - Writing theses (CLE)
   - Current awareness services (RSS, Browzine)
Research Support Services @HKUST

4. Web Services
   o LibGuides
     o research support (Science Research, Engineering Research, HSS Research and Writing Tutorial)
     o bibliographic management (RefWorks)
     o Research Impact
   o Access pages to IRs, Faculty Profile pages
   o Embed ORCID service in our SPD to create ORCID for researchers
5. Publication Support

• Self-help web resources
  o Scholarly Communications
    ✓ Latest news
    ✓ Author’s tips
    ✓ Data management
    ✓ OA
    ✓ Research Repositories

• 20 Workshops with videos
  o OA
  o Publishing tips
  o Digital Humanities

• Feature new books, speak on Book Talks
6. Bibliographic Management Support
   • Citing, referencing
   • Using bibliographic management software
   • Concept on plagiarism
   • Collaborative classes LANG 5001 (2013-14 20 sessions on RefWorks for 305 SENG research students)
7. Tracking Research Impact

• Bibliometrics analysis services for individuals, groups and evaluation of candidates for promotion or tenure (citation reports, citation certification service)
  • Citation counts, EigenFactor Score, Journal Impact Factor, Articles Average Impact, H Index, SCImago Journal Rank
  • Research Performance Metrics Analysis
  • Google Scholar citations and Publish or Perish software
Some Emerging Trends

1. Bibliometrics Support Services
2. E-Science and Data Management Services
3. Digital Scholarship
4. Online Collaborative Tools & Research Support Tools
Bibliometrics Support Services

• Bibliometric literacy and training
• Cited reference searching
• Monitoring research impact
• Grant application support
• Disciplinary research trend reports
Bibliometrics Support Services

• Learn to use some smart tools
  o Thomson’s Incites
  o Essential Science Indicators
  o Advanced features of Scopus
  o Nature Index
  o Journal comparison tool which uses journal impact measures from SCImago and Leiden’s CWTS (SNIP);
  o Altmetrics (usage/download data, social media mentions and other attributions, Altmetric.com, Impactstory and PlumX)
E-Science and Data Management Service

• Science has entered into a fourth paradigm – more collaborative, computational, data intensive and engaging research teams across institutional and disciplinary boundaries (Hey, Tansley & Tolle, 2009)

• Data experimentation
• Visualization and analysis
• Manage research data
Data Management & Curation Service

• Finding data and datasets
  • e.g. SOSC 5110
    [http://libguides.ust.hk/sosc5110/data](http://libguides.ust.hk/sosc5110/data)

• Data Management Plan and Tools
• Data policies, standards, metadata schema
• Data citation
• Data repositories or archives
• Ethical and copyright issues
Data Management & Curation Service

• Informational / Consulting Services
  • Consulting on data management plans
  • Consulting on data and metadata standards
  • Outreach and collaboration with other research data services (RDS) providers on or off campus
  • Providing reference support for finding and citing data/datasets
  • Creating web guides and finding aids for datasets/data repositories
  • Participating with researchers on a project
  • Discussing RDS with other people
  • Training coworkers in RDS
  • Tenopir, Birch & Allard (2012)
Data Management & Curation Service

• Technical Services
  • Providing **technical support** for RDS (repository, access and discovery systems)
  • **Deselecting** data / datasets from a repository
  • Preparing data for **deposits** into a repository
  • Creating **metadata** for datasets
  • **Identifying** datasets that could be candidates for repositories on or off campus
  • Tenopir, Birch & Allard (2012)
ARL E-Science Working Group Survey

- Conducted in 2009 with 57 responses from 123 ARL members

- Through team effort
- In collaboration with other units
- Most offered consultation service, e.g. finding data, DMP
- A few offered data curation

**Responses**

- Provides: 37%
- In Planning: 40%
- No service: 23%
ACRL Library Directors’ Survey

• Conducted in 2012 to 351 ACRL library directors, with 221 responses
  o A small number offer the service, but a quarter to a third are planning to within next 2 years
  o Creating web guides is the most commonly offered
  o Libraries in larger or doctoral-granting institutions or those receiving NSF are more likely to offer the service
  o Collaboration occurs most frequently with other units, often the office of research.
Data Curation Training in HK

- A JULAC Program
- HKU-UIUC
- Feb 25-27, 2015 in HKUST
- 70 participants

- Life cycle
- DMP tools
- Standard & Schema
- HathiTrust
- Research Data Service
- Case studies & labs
Digital Scholarship

• Use of digital evidence, methods of inquiry, research, publication and preservation to achieve scholarly and research goals
• Employs digital media and social media
• Closely associates to Digital Humanities
  o Wikipedia
• Digital sources
• Digitization of text
• Image processing in 2D and 3D
• Text encoding
• Open access and online teaching materials
• Crowdsourcing to transcribe manuscripts
• Virtual Harlem Project
## Online Collaborative Tools

- Adobe Connect
- Access Grid
- ARCS
- CloudStore
- Collaborate
- Data Fabric
- EVO
- Google Drive
- Google Groups
- Mendeley
- NeCTAR Research Cloud
Research Support Tools

• ADS
  http://adswww.Harvard.edu/

• arXiv.org
  http://arxiv.org/

• Coeus
  http://osp.mit.edu/coeus/

• DevEconTree
  http://devecontree.com/

• NeuroTree
  http://neurotree.org/neurotree/

• OSU:pro
  http://pro.osu.edu/

• QTL
  http://statgen.ncsu.edu/qtlcart

• REDCap
  https://redcap.Vanderbilt.edu/

• VIVO
  http://vivo.cornell.edu/
A HKUST Case Study on Research Assessment Exercise (RAE) 2014


• RAE 2014
  • Electronic process from document submission, file storage to seamless access to the documents by local and overseas reviewers
  • Requires a robust electronic system and a new submission workflow
Timeframe and Features

• 3 dimensions: research output, research grants, esteem measures

• 4 Research outputs
  • 80% of total rating
  • 6 year period (Oct 2007 – Sept 2013)
  • By Cost Centers
  • 3 criteria: innovation, scholarship, and publicly accessible
  • Publications, patents, drama, creative works
Library’s Involvement in early stage

Electronic Infrastructure

• A developer to build RAE Electronic System RAEES
• Centralize data from 8 institutions and provide access interface to reviewers
• Each institution need to build a document repository to host its full-text files

Copyright

• JULAC Copyright Committee
• Seek permission from publishers
• Negotiate a transactional license with HKRRLS
RAEES and Document Repositories

**RAE Electronic System at UGC**

A. Cost centre list
B. Academic staff list
C. Institution’s research strategy statements
D. Cost centre’s research strategy statement and summary of research activities
E. Esteem measures
F. External Peer-reviewed research grants
G. Research outputs

- Document Repository CUHK
- Document Repository HKPOLYU
- Document Repository CITYUHK
- Document Repository HKUST
- Document Repository HKBU
- Document Repository LU
- Document Repository UHK
- Document Repository HKIEDU

**Reviewer**

Online access (Single Sign On)

Offline access

**Physical Submissions e.g. books**
HKUST Library’s Participation

1. Design Stage
   • RAEES and Repositories
     o Participated in the design of RAEES
     o Participated in the design of an online platform – RAE Online Submission System (ROSS)
     o Created the Document Repository and implemented the single sign-on interface
   • Copyright permission or clearance
     o UGC sent out letters to 140 major publishers, and coordinated by 1 HKUST Librarian + JULAC Manager
     o Sent out permission requests to minor publishers
HKUST RAE Team Communication

- Working Group
- RAE Taskforce

JUCC (collaborative platform of computer centers in institutions)

UGC

HKRRLS

JULAC (collaborative platform of libraries)

Publishers

Cost center Cost center Cost center Cost center...
HKUST Library’s Participation

2. Formation Stage
   • Library Team
   • Dry Run
   • ROSS training for cost centers

3. Data Processing Stage
   • 19 cost centers submitted their ROs in batches
   • Coordinate between the Library, VPRGO and cost centers
   • Cost center administrators coordinated with researchers to select ROs to be submitted
   • Library Team verified the eligibility of RO, the metadata and the full-text version
Library Workflow

- Verify citations, locate sources, obtain full-text
- Met with cost centers to clarify outstanding issues
- Check & input metadata, submit physical formats
- Check copyright, mark for copyright clearance
Official Submission @ Library
RAE News

• From University Grants Committee, Jan 27, 2015


• About 16,500 research outputs submitted by some 4,400 eligible academic staff, 220 grant submissions and 230 esteem submissions were assessed

• 12% were of “world leading” standard

• 34% attained “international excellence”

• remainder overwhelmingly attained "international standing" or "regional standing".
RAE News

• Hong Kong Commercial Radio, Jan 27, 2015
• Sky Post, Jan 28, 2015

• **HKUST**: 436 faculty assessed, 70% attained 4 and 3 star – world leading, international excellent, highest among the 8
References