

~~WASH REVIEW~~  
APR 9/23/14  
11/13/14 2nd APR approved

1<sup>st</sup> Bulletin 4-17-14  
2<sup>nd</sup> Bulletin 11-20-14

1314138

**COURSE APPROVAL ROUTING CHECKLIST**

- 1. Course Number: ACM613
  - 2. Course Title: Spreadsheets and Databases for Math/Science Professionals  
(no more than 70 characters)
  - 3. Title Abbreviation: Sprd Shts DBs  
For use in Course Schedule (no more than 19 characters)
  - 4. Action:    New Course             Revision             IF Designation             WAC
- Requested IF Designation(s): \_\_\_\_\_

**Course Proposal/Revision Checklist**

This checklist will help departments avoid some of the more common mistakes made on course proposals and revisions. Your use of the checklist will allow the College Senate Curriculum Committee to focus its review on more substantive issues, thus expediting the approval process.

- Proposal conforms to all guidelines listed in the *Directory of Policy Statements*.
- Proposal has been proofread for spelling, punctuation, grammar, and narrative style.
- If the course is a new course, reasons for the additions are included; if the course is a revision of an existing course, reasons for revision and a copy of the old course are included as well as the IF submission narrative when appropriate.
- Catalog description follows the guidelines in the *College Senate Curriculum Handbook*.
- Student learning outcomes are correlated appropriately with course content and assessment.
- All resources are listed alphabetically and conform to a conventional academic style.
- Cross-listed courses have been checked with all chairs and deans involved in development of the course.

**DEPARTMENTAL ACTION**

MLB 4/10/14  
 Chair, Department Curriculum Committee Date

Approved with confirmation that all necessary laboratories, studios, resources, facilities, and personnel for support of this course are available.

Houliang Xu 4/11/14  
 Signature, Department Chairperson (both Chairs if course is cross-listed) Date

Mathematics  
 Department

**Prefix, Number and Name of Course:** ACM 613 Spreadsheets and Databases for Math and Science Professionals

**Credit Hours:** 1

**In Class Instructional Hours:** 1

**Labs/Studio:** 0

**Field Work:** 0

**Catalog Description:**

*Prerequisites: Instructor permission.*

Applications of spreadsheet and database software programming to solve real life problems in computational mathematics. Analysis of data to produce reports and presentations for diverse audiences.

**Reasons for Addition:**

The reason for addition of this course is to create a one-semester-hour core module in problem solving in professional, applied and computational mathematics using spreadsheet and database software. This course meets student needs because spreadsheets and databases are used extensively in business and industry.

<b>Student Learning Outcomes:</b> <b>Students will:</b>	<b>Course Content References:</b>	<b>Assessment:</b>
1. analyze data using different spreadsheet and database computing languages.	II, III, IV	Assignments, examinations and computer projects.
2. design and implement algorithms using spreadsheet and database computing languages.	I,II,III,IV	Individual homework, group work.
3. compare and contrast the advantages and disadvantages of different spreadsheet and database computing languages.	II,III,IV,V	Assignments, group work, examinations and computer projects.
4. create reports and presentations using typesetting software.	III	Assignments, group work, examinations, and portfolios.
<p><b>Course Content:</b></p> <p><b>I. Storing data with spreadsheets and databases</b></p> <ul style="list-style-type: none"> <li>A. Capabilities and limits of spreadsheets and databases</li> <li>B. Structure of data in spreadsheets and databases</li> <li>C. Case studies in big data</li> </ul> <p><b>II. Performing calculations with spreadsheet and database software</b></p> <ul style="list-style-type: none"> <li>A. Formulas and visual basic (VBA) to create advanced spreadsheets</li> </ul>		

- B. Creating databases and using queries in databases
- C. Case studies and problem solving using databases and spreadsheets

### **III. Presenting data with spreadsheet software**

- A. Creating forms and presenting results with spreadsheet
- B. Creating reports from databases
- C. Case studies and examples from business, industry, science and mathematics

### **IV. Applications**

- A. Applications of spreadsheets and databases to business, industry, science and mathematics
- B. Analysis of benefits to business and industry from using spreadsheets and database software

### **V. Software for spreadsheets and databases**

- A. Overview of commercial and open source software to create and program spreadsheets and relational databases
- B. Cost-benefit analysis of software currently available

## **Resources**

### **Scholarship:**

Atkinson, P., Vieira, R., & Ebook Library. (2012). *Beginning Microsoft SQL server 2012 programming: Electronic resource*. Hoboken: Hoboken : John Wiley & Sons, 2012.

Birnbaum, D. (2005). *Microsoft Excel VBA programming for the absolute beginner. [electronic resource]*. Boston, MA: Boston, MA : Course Technology, 2005.

Boicea, A., Serban, A., Nicula, A., & Radulescu, F. Distributed databases replication methods for MySQL. *Annals of DAAAM & Proceedings*, 167, 2012.

Churcher, C., & SpringerLink (Online service). (2008). *Beginning SQL queries: From novice to professional . [electronic resource]*. New York, NY: Apress. Distributed to the Book trade worldwide by Springer-Verlag New York, 2008.

DeCoursey, W. J. (2003). *Statistics and probability for engineering applications with Microsoft Excel. [electronic resource]*. Boston: Newnes, 2003.

DuBois, P. (2003). *MySQL cookbook: Paul DuBois*. Sebastopol, CA: Sebastopol, CA : O'Reilly, 2003.

Jorgensen, A., Segarra, J., LeBlanc, P., Cherry, D., Nelson, A., & Ebook Library. (2012). *Microsoft SQL server 2012 bible: Electronic resource*. Hoboken, NJ: John Wiley & Sons, 2012.

- Keller, C. M., & Kros, J. F. (2011). An innovative Excel application to improve exam reliability in marketing courses. *Marketing Education Review*, 21(1), 21-27. doi: 10.2753/MER1052-8008210103
- Marasinghe, M. G., & Kennedy, W. J. (2008). Introduction to the SAS language. (pp. 1-54). New York; NY: Springer New York. doi: 10.1007/978-0-387-77372-8\_1
- Marasinghe, M. G., Kennedy, W. J. 1., & SpringerLink (Online service). (2008). *SAS for data analysis: Intermediate statistical methods. [electronic resource]*. New York, New York: Springer, 2008.
- Oppel, A. J. (2009). *Databases: A beginner's guide*. New York, New York: McGraw-Hill, 2009.
- Vaswani, V. (2004). *MySQL: The complete reference*. New York, New York : McGraw-Hill/Osborne, 2004.
- Walkenbach, J. (2010). *Excel 2010 power programming with VBA. [electronic resource]*. Hoboken, N.J: Wiley Pub., Inc., 2010.
- Walkenbach, J. (2010). *Excel VBA programming for dummies. [electronic resource]*. Indianapolis, Ind: Wiley Pub., Inc., 2010.
- Walkenbach, J. (2011). *Excel 2007 formulas: Electronic resource*. Hoboken: Hoboken : John Wiley & Sons, 2011.

### **Periodicals:**

*SIAM Journal on Computing*  
*Spreadsheets in Education Journal*

### **Electronic and/or Audiovisual Resources:**

Open source spreadsheet software: <http://www.libreoffice.org/>

Excel templates: <http://office.microsoft.com/en-us/templates/excel-templates-FX102828204.aspx>

1314138

College Senate Curriculum Committee  
Revisions for Final Approval  
Curricular Item

Course: New x Revised      Number ACM 613

Program: New      Revised      Hegis Code     

Title: Spreadsheets and Databases for Math/Science Professionals

Requested Revisions:

**SLOs:** There is an extra "of" in SLO 3. SLOs 1-3 seem repetitive, all having multiple verbs and all sharing 'analyze'. Please review and revise these SLOs to be clearly different from each other. We suggest that you remove analysis from 1 and 3(?), resulting in four SLO verbs: compare/contrast, design (-implement), program, and create.

**Assessments:** Is it "homework assignments" or "homework, assignments"? Also, once SLO's are individuated, do the uniform assessments still apply?

**Scholarship:** Please alphabetize this section.

*This APP was rejected*

Karen Sands-O'Connor Date 9/30/14

Chair, College Senate Curriculum Committee

*Karen O'Connor*

Date 10/31/14

Dean's Office, SNSS, SOE, SAH, SOP

Please attach a copy of the newly revised curricular item and return with this form on Green paper to the College Senate Office, Cleveland Hall 211 (878-5139). Also, send electronic copy to [csec@buffalostate.edu](mailto:csec@buffalostate.edu).

*submitted docs on 10/31/14*

