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| **Transfer Model Curriculum (TMC) Template for Mathematics** | | Template # 2001 |
| **CCC Major or Area of Emphasis:** Mathematics | | Rev. 3: 03/01/13 |
| **TOP Code:** 170100 |  |  | |
| **CSU Major(s):** Mathematics |  |  | |
| **Total Units:** 18 *(all units are semester units)* |  |  | |

In the four columns to the right under the **College Program Requirements**, enter the college’s course identifier, title and the number of units comparable to the course indicated for the TMC. If the course may be double-counted with either CSU-GE or IGETC, enter the GE Area to which the course is articulated. To review the GE Areas and associated unit requirements, please go to Chancellor’s Office Academic Affairs page, RESOURCE section located at:

<http://extranet.cccco.edu/Divisions/AcademicAffairs/CurriculumandInstructionUnit/TransferModelCurriculum.aspx>

or the ASSIST website:

<http://web1.assist.org/web-assist/help/help-csu_ge.html>.

The units indicated in the template are the **minimum** semester units required for the prescribed course or list. All courses must be CSU transferable. At a minimum, where there is an indicated **C-ID Descriptor** in the **REQUIRED CORE and LIST A**, the course must have been submitted to C-ID prior to completing the Associate Degree for Transfer (ADT) proposal for Chancellor’s Office approval.

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Where no **C-ID Descriptor** is indicated, discipline faculty should compare their existing course to the example course(s) provided in the TMC at:

<http://www.c-id.net/degreereview.html>

and attach the appropriate ASSIST documentation as follows:

* *Articulation Agreement* *by Major* (***AAM***) demonstrating lower division preparation in the major at a CSU;
* *CSU Baccalaureate Level Course List by Department* (***BCT***) for the transfer courses; and/or,
* *CSU GE Certification Course List by Area* (***GECC***).

The acronyms ***AAM, BCT,*** and ***GECC*** will appear in **C-ID Descriptor** column directly next to the course to indicate which report will need to be attached to the proposal to support the course’s inclusion in the transfer degree. To access ASSIST, please go to <http://www.assist.org>.

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| **Associate in Science in Mathematics for Transfer Degree**  **College Name:** **Contra Costa College** | | | | | |
| **TRANSFER MODEL CURRICULUM (TMC)** | | **COLLEGE PROGRAM REQUIREMENTS** | | | |
| **Course Title (units)** | **C-ID Descriptor** | **Course ID** | **Course Title** | **Units** | **CSU GE/**  **IGETC Area** |
| **REQUIRED CORE:** (12 units from one of the following options) |  |  | | | |
| **OPTION 1** |
| Single Variable Calculus I – Early Transcendentals (4)  **OR**  Single Variable Calculus I – Late Transcendentals (4) | MATH 210  **OR**  MATH 211 | MATH 190 | Analytic Geometry and Calculus I | 5 | B4/2 |
| Single Variable Calculus II – Early Transcendentals (4)  **OR**  Single Variable Calculus II – Late Transcendentals (4) | MATH 220  **OR**  MATH 221 | MATH 191 | Analytic Geometry and Calculus II | 4 | B4/2 |
| Multivariable Calculus (4) | MATH 230 | MATH 290 | Analytic Geometry and Calculus III | 5 | B4/2 |
| **OR** |  |  | | | |
| **OPTION 2** |  |
| Single Variable Calculus Sequence (2 semesters or 3 quarters) (8)  **OR**  Single Variable Calculus I – Early Transcendentals (4)  **AND**  Single Variable Calculus II – Early Transcendentals (4)  **OR**  Single Variable Calculus I – Late Transcendentals (4)  **AND**  Single Variable Calculus I – Late Transcendentals (4) | MATH 900S  **OR**  MATH 210  **AND**  MATH 220  **OR**  MATH 211  **AND**  MATH 221 |  |  |  |  |
| Multivariable Calculus (4) | MATH 230 |  |  |  |  |
| **OR** |  |  | | | |
| **OPTION 3** |  |
| Single Variable and Multivariable Calculus Sequence (3 semester/4 quarters for 12 units) | ***AAM*** |  |  |  |  |
| ***Choose a minimum of 6 units from the LISTS below with at least 3 units from LIST A*** |  |  | | | |
| **LIST A: Select one to two** (3-6 units) |  |  | | | |
| Ordinary Differential Equations (3) | MATH 240 | MATH 292 | Introduction to Differential Equations | 4 | B4/2 |
| Linear Algebra (3) | MATH 250 | MATH 200 | Introduction to Linear Algebra | 4 | B4/2 |
| **OR** | |  | | | |
| Differential Equations and Linear Algebra (5) | MATH 910 |  |  |  |  |
| **LIST B: Select one** (1-4 units) |  |  | | | |
| Discrete Mathematics (3) | MATH 160 | MATH 185 | Discrete Mathematics | 3 | B4/2 |
| Calculus-based Physics for Scientists and Engineers: A (4) | PHYSICS 205 |  |  |  |  |
| Mathematical Computing Systems (1) | ***AAM*** |  |  |  |  |
| Computer Programming (3) | ***AAM*** |  |  |  |  |
| Proof (3) | ***AAM*** |  |  |  |  |
| Introduction to Statistics (3) | MATH 110 |  |  |  |  |
| **Total Units for the Major:** | **18** | **Total Units for the Major:** | | 21-22 |  |
|  | | **Total Units that may be double-counted**  **(*Ensure that the total for each Area does not exceed the limit for the specific Area)*** | | | 3 |
| **General Education (CSU GE or IGETC) Units** | | | 37-39 |
| **Elective (CSU Transferable) Units** | | | 2-5 |
| **Total Degree Units (maximum)** | | | **60** |

**NOTE:**

*While 3 units are required from LIST A, no units are required from LIST B. The major must be a minimum of 18 semester units.*