**XML Documentation**

This document describes XML files with data specific to the department of Math/CS. The data is in the following files (each file has a corresponding schema for validation).

1. **Rotation.xml** – describes the rotation of courses.
   1. **Maintenance** – once a year (Fall) or any time rotation schedule changes
2. **Courses.xml** – describes all departmental courses, including prerequisites with well defined semantics.
   1. **Maintenance** – any time a course change is approved
3. **Schedule.xml** – describes schedules as available from the um website. This file is self-maintained, updated daily.
   1. **Maintenance** – none needed unless application provided by P. Pratt changes
4. **BSCSDegreeReq.xml** – describes the requirements for completing the BS in CS (as of Fall 2010)
   1. **Maintenance** – only when BS/CS degree requirements change

1) **Rotation.xml**

This xml is used to represent schedule of courses that will be offered over the next few semester.

**Xml Schema:** [**http://comp.umsl.edu/~xml\_data/Rotation.xsd**](http://comp.umsl.edu/~xml_data/Rotation.xsd)

**Xml :** [**http://comp.umsl.edu/~xml\_data/Rotation.xml**](http://comp.umsl.edu/~xml_data/Rotation.xml)

**Xml Structure:**

<rotation\_year>  
 <year> </year>  
 <course>  
 <subject> </subject>  
 <course\_number> </course\_number>  
 <course\_name> </course\_name>  
 <rotation\_term>  
 <term> </term>  
 <time\_code></time\_code>  
 </rotation\_term>  
 <rotation\_term>  
 <term> </term>  
 <time\_code> </time\_code>  
 </rotation\_term>  
 </course>

</rotation\_year>

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| --- | --- | --- |
| **XML tags** | **Description** | **Expected Value** |
| **<rotation\_year>** | Rotations are filtered by year. This can occur infinite times. |  |
| **<year>** | Represents the rotation year | **4-digit Integer number.** |
| **<course>** | A sequence which can occur infinite times within <rotation\_year> and has 4 sub tags. |  |
| **<subject>** | Represents course type. Course can be only one of two values CMP SCI or MATH. | **CMP SCI or MATH** |
| **<course\_number>** | Represents course number. | **4-digit Integer number.** |
| **<course\_name>** | Name of the course. | **English text.** |
| **<rotation\_term>** | Shows rotations for two semesters. This tag can occur only twice for each course. This is a root tag and has only 2 sub tags. |  |
| **<term>** | Represents term or semester in that <year>. Should be represented as Fall for F, Spring for W. | **Fall or Spring** |
| **<time\_code>** | Represents if the course is Evening/Day Course. **This is a list of strings and should be separated by delimiter Comma(,) if it is offered in both Day & Evening**.  **This can be Nillabe, if that course is not offered that semester.** | **D stands for Day, E stands for Evening.**  **Offered Both times: <time\_code>D,E</time\_code>**  **Offered in Day:**  **<time\_code>D</time\_code>**  **Offered in Evening:**  **<time\_code>E</time\_code>**  **Not Offered in that term:**  **<time\_code></time\_code>** |

2) **Courses.xml**

This xml is used to represent all the Graduate and Undergraduate courses offered in MATH and Computer Science Department..

**Xml Schema:** [**http://comp.umsl.edu/~xml\_data/Courses.xsd**](http://comp.umsl.edu/~xml_data/Courses.xsd)

**Xml :** [**http://comp.umsl.edu/~xml\_data/Courses.xml**](http://comp.umsl.edu/~xml_data/Courses.xml)

**Xml Structure:**

<course>  
 <subject></subject>  
 <course\_number></course\_number>  
 <course\_name></course\_name>  
 <credit></credit>  
 <course\_description></course\_description>

<can\_select\_multiple></can\_select\_multiple>  
 <prerequisite>

<or\_choice>

<and\_required></and\_required>

</or\_choice>

<additional\_preq></additional\_preq>  
 </prerequisite>  
 </course>

|  |  |  |
| --- | --- | --- |
| **XML tags** | **Description** | **Expected Value** |
| **<course>** | This sequence occurs infinite times & has all courses related information. |  |
| **<subject>** | Represents course type. Course can be only one of two values CMP SCI or MATH. | **CMP SCI or MATH** |
| **<course\_number>** | Represents course number. | **4-digit Integer number.** |
| **<course\_name>** | Name of the course. | **English text.** |
| **<credit>** | Represents credit hours in number. | **1-digit Integer number.** |
| **<course\_description>** | Describes the course. | **English text.** |
| **<can\_select\_multiple>** | Tells if that course can be taken multiple times. Some special courses like 5880 can be taken more than once for credit.  **This is a Boolean type & values can be either “true” or “false” only.**  **Can occur minimum 0 times.**  **This means, this tag can be left out without adding if it cannot be added for that course.** | **true or false** |
| **<prerequisite>** | Describes course prerequisites.  **Can occur minimum 0 times.**  **This means, this tag can be left out without adding if it cannot be added for that course.** |  |
| **<or\_choice>** | **Contains set of required pre-requisites.**  **Can occur minimum 0 times.**  **This means, this tag can be left out without adding if it cannot be added for that course.**  **Some courses can have plain text as pre-reqs, which will be represented in <additional\_preq> tag.** |  |
| **<and\_required>** | **Represents pre-requisites which must be satisfied.**  **This is a list of strings separated by delimiter comma(,). Pre-reqs are represented by their subject followed by course numbers in Disjunctive normal form.**  **Must occur at least once, & maximum is infinite.** | **Examples:**  **1) Prereq: CMP SCI A**  **<or\_choice>**  **<and\_required>CMP SCI A</and\_required>**  **</or\_choice>**  **There is only one course, and it should be satisfied.**  **2)Prereq: CMP SCI A, MATH B**  **<or\_choice>**  **<and\_required>CMP SCI A,MATH B</and\_required>**  **</or\_choice>**  **Both CMP SCI A & MATH B are required.**  **3)Prereq: CMP SCI A or CMP SCI B**  **<or\_choice>**  **<and\_required>CMP SCI A</and\_required>**  **<and\_required>CMP SCI B</and\_required>**  **</or\_choice>**  **There is a choice between CMP SCI A & CMP SCI B.**  **4) Prereq: CMP SCI A and MATH B or MATH C**  **<or\_choice>**  **<and\_required>CMP SCI A,MATH C</and\_required>**  **<and\_required>MATH B,MATH C</and\_required>**  **</or\_choice>** |
| **<additional\_preq>** | **Any additional pre-reqs other than course numbers is this tag value.**  **Can occur minimum 0 times.**  **This means, this tag can be left out without adding if it cannot be added for that course.** | **Examples:**  MATH 1030 with B- or better.  An elementary course in analysis of algorithms.  Graduate standing.  Completion of at least 12 graduate credits and approval of research topic by thesis adviser. |

3) **Schedule.xml**

This is generated by a perl script.

**Perl script location:** [**http://comp.umsl.edu/~xml\_data/get\_schedule.pl**](http://comp.umsl.edu/~xml_data/get_schedule.pl)

This script is used to convert the html schedule feed provided by the webapp.

**Webapp location:** [**https://apps.umsl.edu/webapps/ITS/CourseSchedule/index.cfm?subject=${subject}&term=${term}**](https://apps.umsl.edu/webapps/ITS/CourseSchedule/index.cfm?subject=$%7Bsubject%7D&term=$%7Bterm%7D)

and converts it to xml format. It checks for the current and next year and the SP (spring), FS (fall) and SS (summer) sessions.   
MATH  
CMP SCI  
SPXXXX SSXXXX FSXXXX

**Cronfile location:** [**http://comp.umsl.edu/~xml\_data/cronfile**](http://comp.umsl.edu/~xml_data/cronfile)

It is run from a **cron job** as follows:

“20 12 \* \* \* /students/projects/xml\_data/public\_html/get\_schedule.pl >> /tmp/xml\_dataschedule\_log”.

This regenerates the schedule.xml file used by the graduate and undergraduate advisor tools.

The courses are filtered by term & year and then by session.

**Xml Schema:** [**http://comp.umsl.edu/~xml\_data/Schedule.xsd**](http://comp.umsl.edu/~xml_data/Schedule.xsd)

**Xml :** [**http://comp.umsl.edu/~xml\_data/Schedule.xml**](http://comp.umsl.edu/~xml_data/Schedule.xml)

**Xml Structure:**

<scheduled\_course>  
 <term> </term>  
 <year> </year>  
 <session>  
 <session\_name> </session\_name>  
 <course>  
 <subject> </subject>  
 <course\_number> </course\_number>  
 <course\_name> </course\_name>  
 <catalog\_number> </catalog\_number>  
 <class\_section> </class\_section>  
 <start\_date> </start\_date>  
 <end\_date> </end\_date>  
 <instruction\_mode> </instruction\_mode>  
 <uncommon>  
 <uncommon\_record>  
 <start\_time> </start\_time>  
 <end\_time> </end\_time>  
 <instructor> </instructor>  
 <room> </room>  
 <day\_code> </day\_code>  
 </uncommon\_record>  
 </uncommon>  
 </course>

</session>

</scheduled\_course>

|  |  |  |
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| **XML tags** | **Description** | **Expected Value** |
| **<scheduled\_course>** | Root tag. Represents all the courses. |  |
| **<term>** | Represents the term. It can be FS(fall), SS(summer), SP(spring) | **FS or SS or SP** |
| **<year>** | Schedule for the year. |  |
| **<session>** | Next level filtering by session. |  |
| **<session\_name>** | Name of the session. |  |
| **<course>** | A sequence which can occur infinite times. |  |
| **<subject>** | Represents course type. Course can be only one of two values CMP SCI or MATH. | **CMP SCI or MATH** |
| **<course\_number>** | Represents course number. | **4-digit Integer number.** |
| **<course\_name>** | Name of the course. | **English text.** |
| **<catalog\_number>** | Catalog number | **5-digit Integer number.** |
| **<class\_section>** | Class Section |  |
| **<start\_date>** | Start date of course. | **Valid Date in Date format** |
| **<end\_date>** | End date of course. | **Valid Date in Date format** |
| **<instruction\_mode>** | Instruction mode. | **String value.** |
| **<uncommon\_record>** | Few courses are offered more than two days a week. Such courses have same catalog numbers, but the only difference is in Instructor, start & end time, room, day of the week. Such records are merged and kept in single record <uncommon\_record>for simplicity. **This has a minimum occurrence of 1 and can occur infinite times.** |  |
| **<start\_time >** | start\_time | **4-digit Integer number.** |
| **<end\_time >** | end\_time | **4-digit Integer number.** |
| **<instructor >** | Name of the instructor. |  |
| **<room >** | Room name. |  |
| **<day\_code>** | Day of week. | **M or T or W or R or F** |

**Schedules are also written to html file to be used from the dept pages:**

**http://www.cs.umsl.edu/~xml\_data/csmath\_courseschedule/index.php**

**4) BSCSDegreeReq.xml**

This xml represents the core courses that Undergraduate students in Computer Science have to satisfy.

**Xml Schema:** [**http://comp.umsl.edu/~xml\_data/BSCSDegreeReq.xsd**](http://comp.umsl.edu/~xml_data/BSCSDegreeReq.xsd)

**Xml :** [**http://comp.umsl.edu/~xml\_data/BSCSDegreeReq.xml**](http://comp.umsl.edu/~xml_data/BSCSDegreeReq.xml)

**Xml Structure:**

<CoreCourses>  
 <corecourse>  
 <subject> </subject>  
 <course\_number> </course\_number>  
 <course\_name> </course\_name>   
 </corecourse>  
 </CoreCourses>

<Electives>

<Elective>   
 <noofelecctives> </noofelecctives>  
 <abovelevel> </abovelevel>  
 <relationwithotherelectives> </relationwithotherelectives>  
 </Elective>   
 </Electives>

<MathandStatistcs>  
 <course>  
 <subject> </subject>  
 <course\_number> </course\_number>  
 <course\_name> </course\_name>   
 </course>

</MathandStatistcs>  
 <OtherCourses>  
 <course>  
 <subject> </subject>  
 <course\_number> </course\_number>  
 <course\_name> </course\_name>   
 </course>

</OtherCourses>

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| **XML tags** | **Description** | **Expected Value** |
| **<CoreCourses>** | **Root tag for Computer Science Core Courses only.** |  |
| **<corecourse>** | A sequence representing all the courses. **Can occur infinite times.** |  |
| **<subject>** | Represents course type. Course can be only one of two values CMP SCI or MATH. | **CMP SCI or MATH** |
| **<course\_number>** | Represents course number. | **4-digit Integer number.** |
| **<course\_name>** | Name of the course. | **English text.** |
| **<Electives>** |  |  |
| **<Elective>** | Represents information about electives. |  |
| **<noofelectives>** | Number of electives to be satisfied for BS in CS program. | **1-digit Integer number.** |
| **<abovelevel>** | Level above which electives have to be taken. | **4-digit Integer number.** |
| **<relationwithotherelectives> >** | **Represents if any dependency between electives.** | **English text.** |
| **<MathandStatistics>** | Math electives |  |
| **<course>** | A sequence which can occur infinite times. |  |
| **<subject>** | Represents course type. Course can be only one of two values CMP SCI or MATH. | **CMP SCI or MATH** |
| **<course\_number>** | Represents course number. | **4-digit Integer number.** |
| **<course\_name>** | Name of the course. | **English text.** |
| **<OtherCourses>** | **Other than MATH or CMP SCI.** |  |
| **<subject>** | Represents course type. Course can be only one of two values CMP SCI or MATH. | **CMP SCI or MATH** |
| **<course\_number>** | Represents course number. | **4-digit Integer number.** |
| **<course\_name>** | Name of the course. | **English text.** |