UMCM: One Institution's Implementation Experience with Kuali Curriculum Management

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University of Maryland

- Large “flagship” University
  - 12 Colleges, over 100 departments
  - 150+ programs of study, depending on definition
  - 26,000+ undergraduates, 10,000+ grad students
  - ~8,000 employees including ~ 1,500 T/Tk faculty
- Growing Kuali Community on campus
  - Rice & COEUS in production
  - KFS & OLE in early stages
- Legacy, homegrown SIS on a mainframe
  - Challenges with ability to sustain expertise on technology
  - Difficulty continuing to meet changing campus needs

Project Introduction

- Team based in College Park, MD, South Africa, and Vancouver, BC
- KS 1.2 codebase
  - Fixed issues for 1.2.1
  - Going live with 1.2.1 with UM overlay
- Focused year 1 implementation on course proposal and approval
  - Create a course
  - Modify a course
  - Retire a course
  - Workflow
  - Authorization
  - Dependency analysis

Project Timeline

- Major Milestones
  - 7/21/2011 Project Kickoff
  - 8/26/2011 Milestone 0 “Infrastructure”
    - 3: two week sprints
  - 11/1/2011 Milestone 1 “The Plumbing”
    - 4: two week sprints (1 week QA)
  - 12/13/2011 Milestone 2 “Soft Launch”
    - 2: two week sprints (1 week QA)
  - 1/31/2012 Milestone 3 “Production Build”
    - 3: two week sprints (4 weeks UAT)
  - 3/7/2012 Go-Live
- Where are we today
  - Getting ready for our pilot colleges
  - Localizing
  - Retire Course by Proposal Feature
  - Rules – Rules types, categories, entry

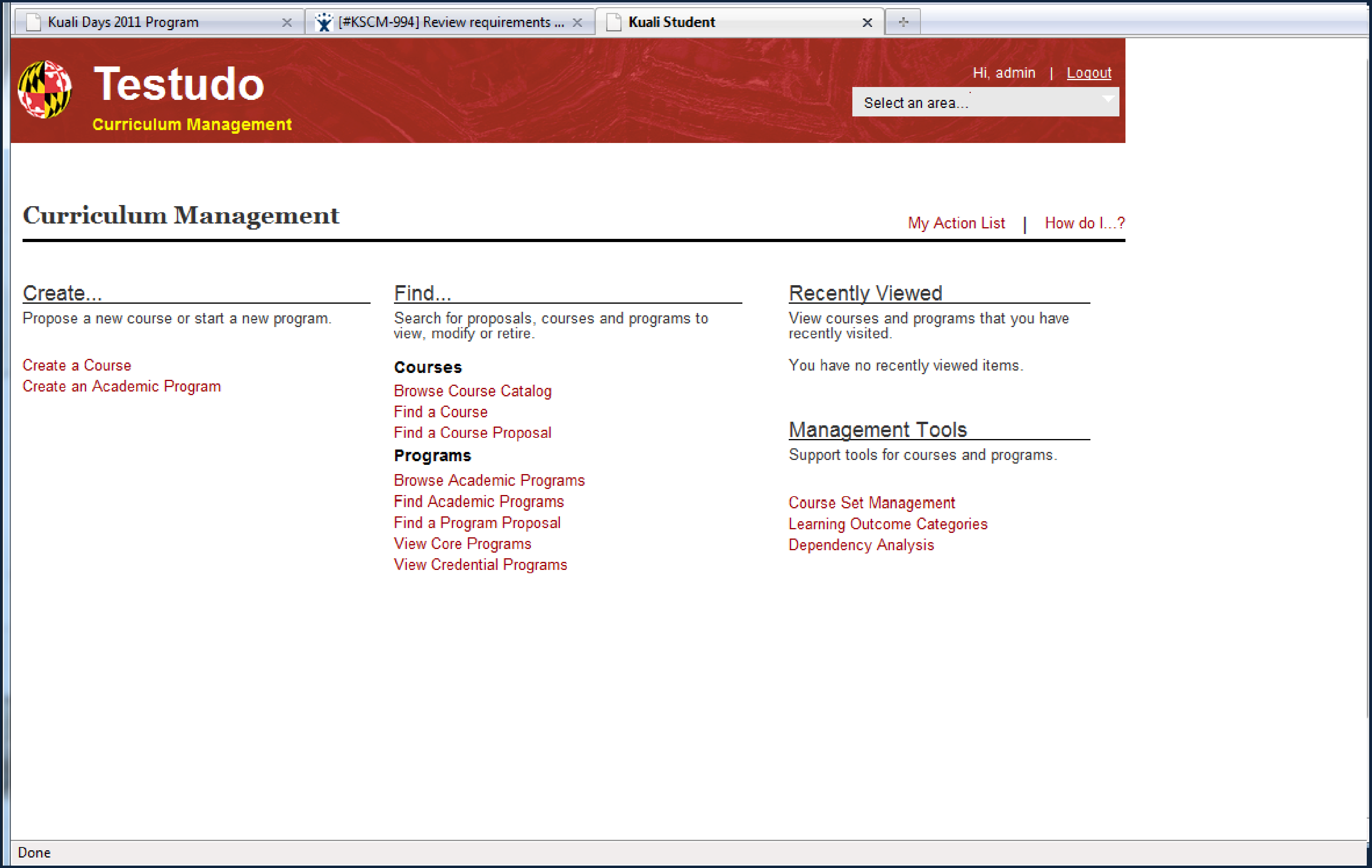
Organizational structure

- Large multi-disciplinary team
- Structural Evolution
- Current Structure
  - Data Team (Functional & Technical)
  - Infrastructure Team
  - Software Development Team
  - Functional Working Group (including UI)
  - Functional Rules Group
  - Quality Assurance
  - Documentation and Training
- Continual improvement

Development Methodologies

- Hybrid
  - Upfront Waterfall Style Requirements Gathering
    - Dedicated Business Analysts
    - Dedicated UX
      - Rapid Prototyping with Azure
  - Agile Style Development
    - Two Week Sprints
    - Daily Standups
    - Product Owner Priority Meetings
    - Sprint Retrospectives

DEMO



Testudo

Curriculum Management

Hi, admin | Logout

Select an area...

Curriculum Management

My Action List | How do I...?

Create...

Propose a new course or start a new program.

Create a Course
Create an Academic Program

Find...

Search for proposals, courses and programs to view, modify or retire.

Courses

Browse Course Catalog
Find a Course
Find a Course Proposal

Programs

Browse Academic Programs
Find Academic Programs
Find a Program Proposal
View Core Programs
View Credential Programs

Recently Viewed

View courses and programs that you have recently visited.

You have no recently viewed items.

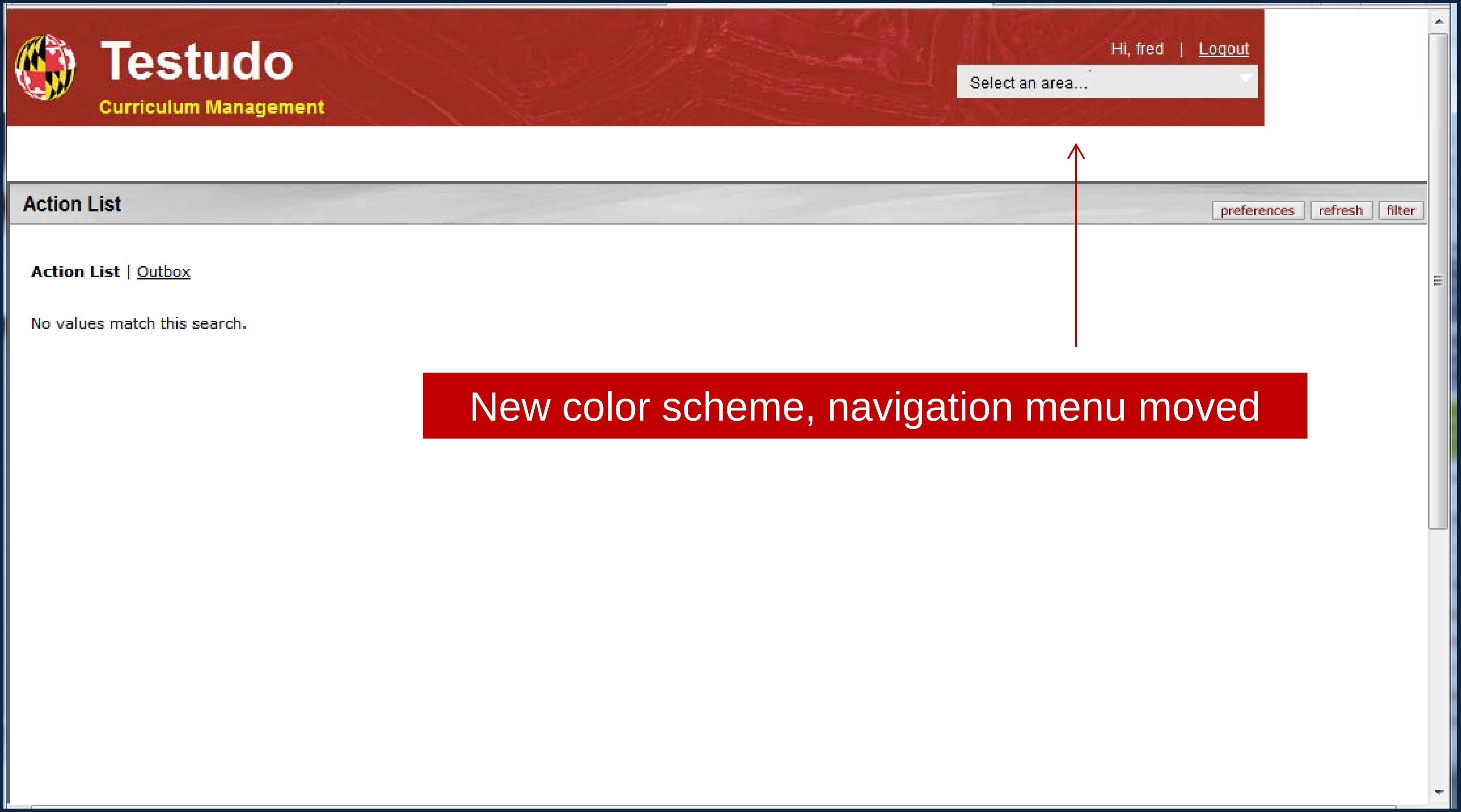
Management Tools

Support tools for courses and programs.

Course Set Management
Learning Outcome Categories
Dependency Analysis

Done

KS Landing Page



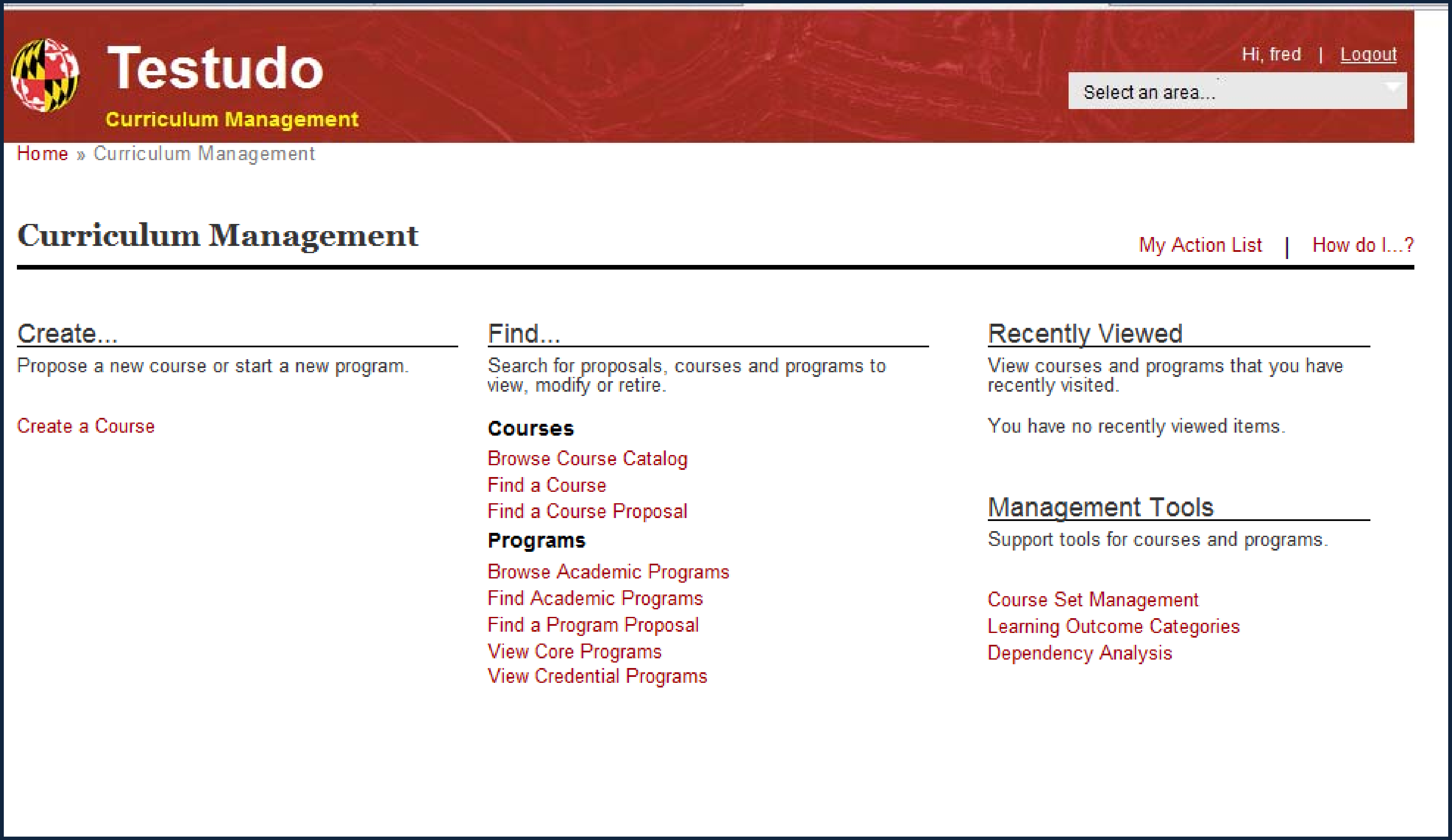
Action List

Action List | Outbox

No values match this search.

New color scheme, navigation menu moved

CM Landing Page



Home » Curriculum Management

Curriculum Management

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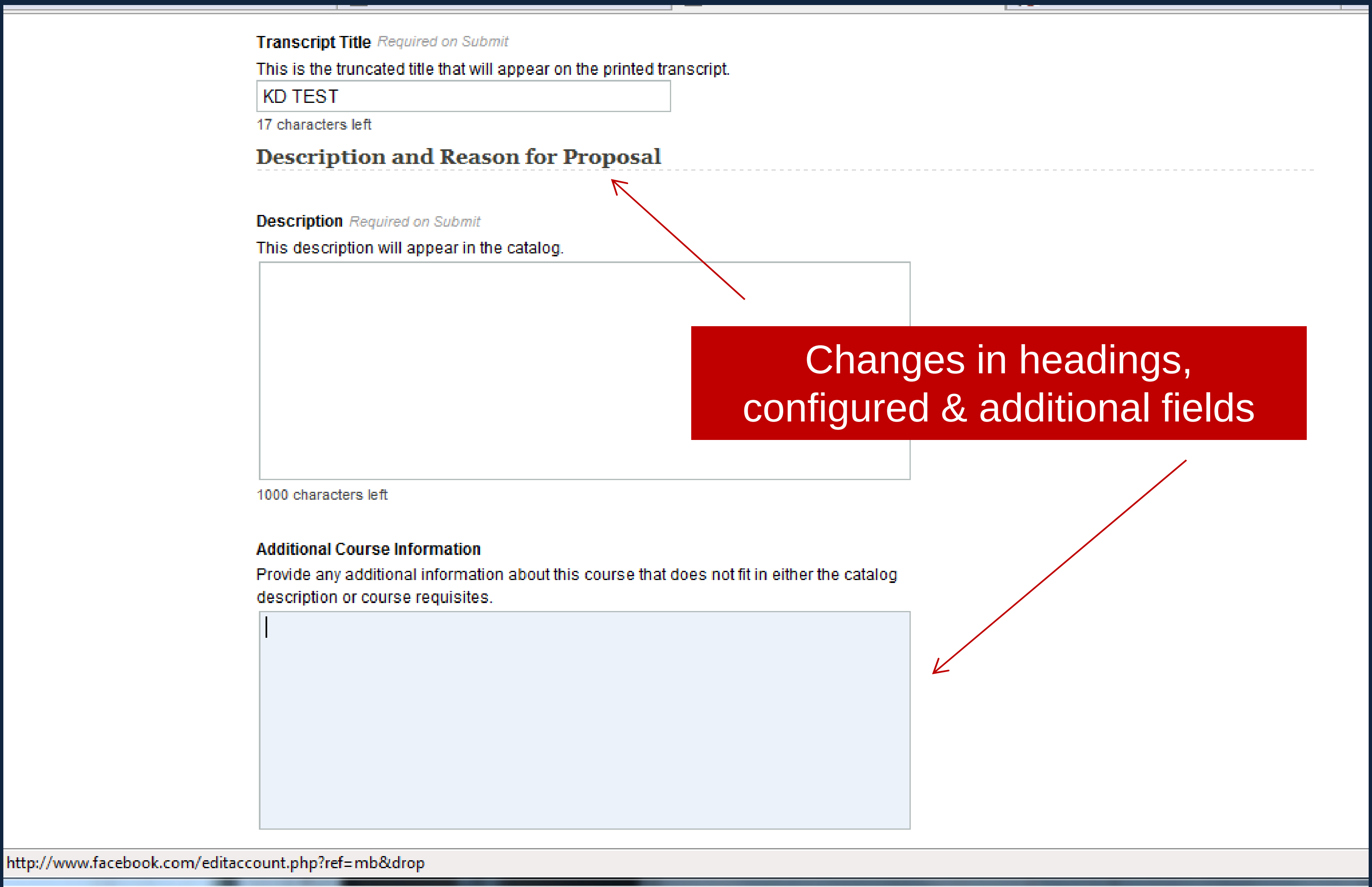
Create a Course – Course Information



Transcript Title *Required on Submit*

This is the truncated title that will appear on the printed transcript.

KD TEST

17 characters left

Description and Reason for Proposal

Description *Required on Submit*

This description will appear in the catalog.

1000 characters left

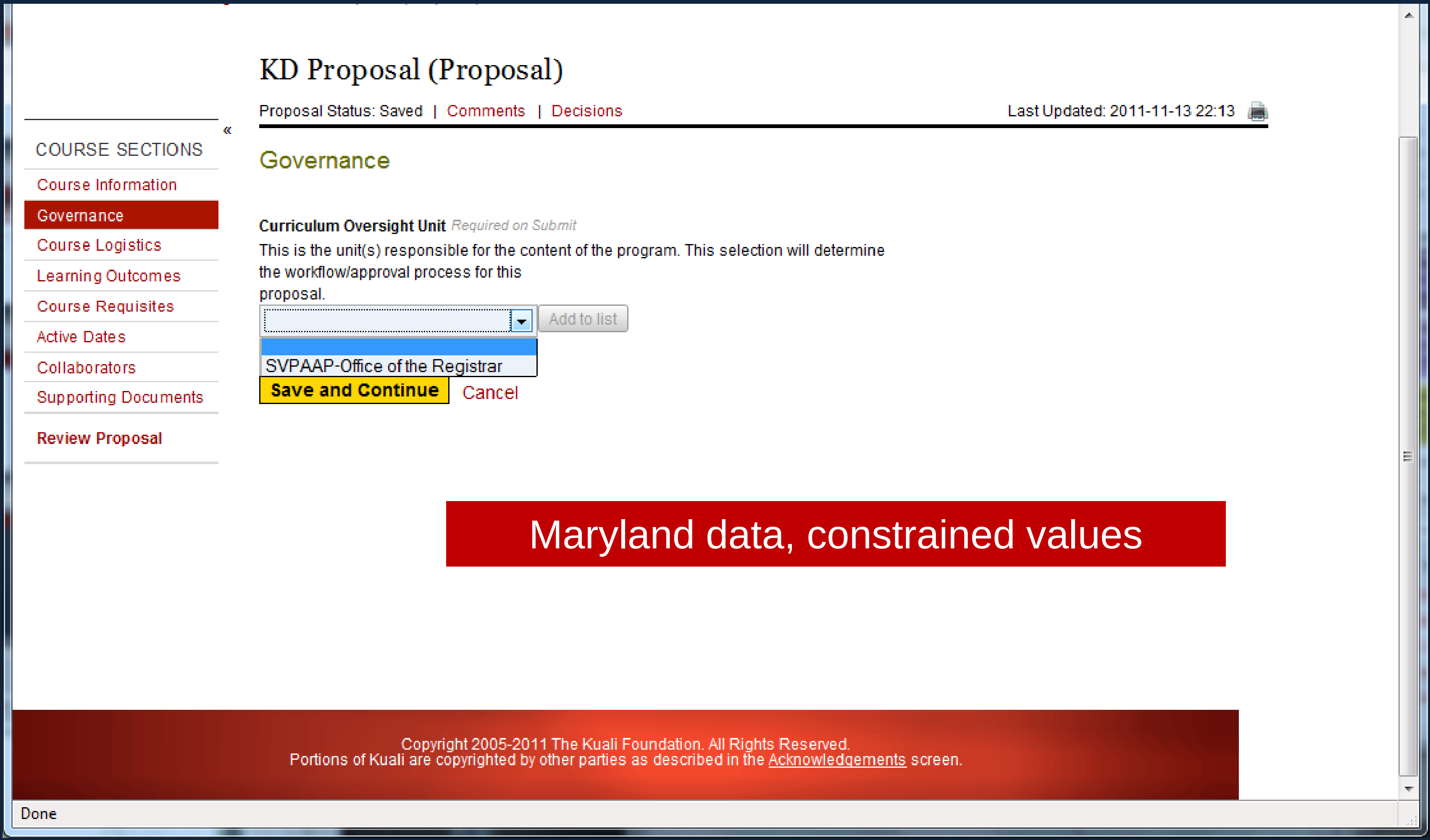
Additional Course Information

Provide any additional information about this course that does not fit in either the catalog description or course requisites.

http://www.facebook.com/editaccount.php?ref=mb&drop

Changes in headings, configured & additional fields

Create a Course – Governance



KD Proposal (Proposal)

Proposal Status: Saved | Comments | Decisions

Last Updated: 2011-11-13 22:13

COURSE SECTIONS

- Course Information
- Governance
- Course Logistics
- Learning Outcomes
- Course Requisites
- Active Dates
- Collaborators
- Supporting Documents
- Review Proposal

Governance

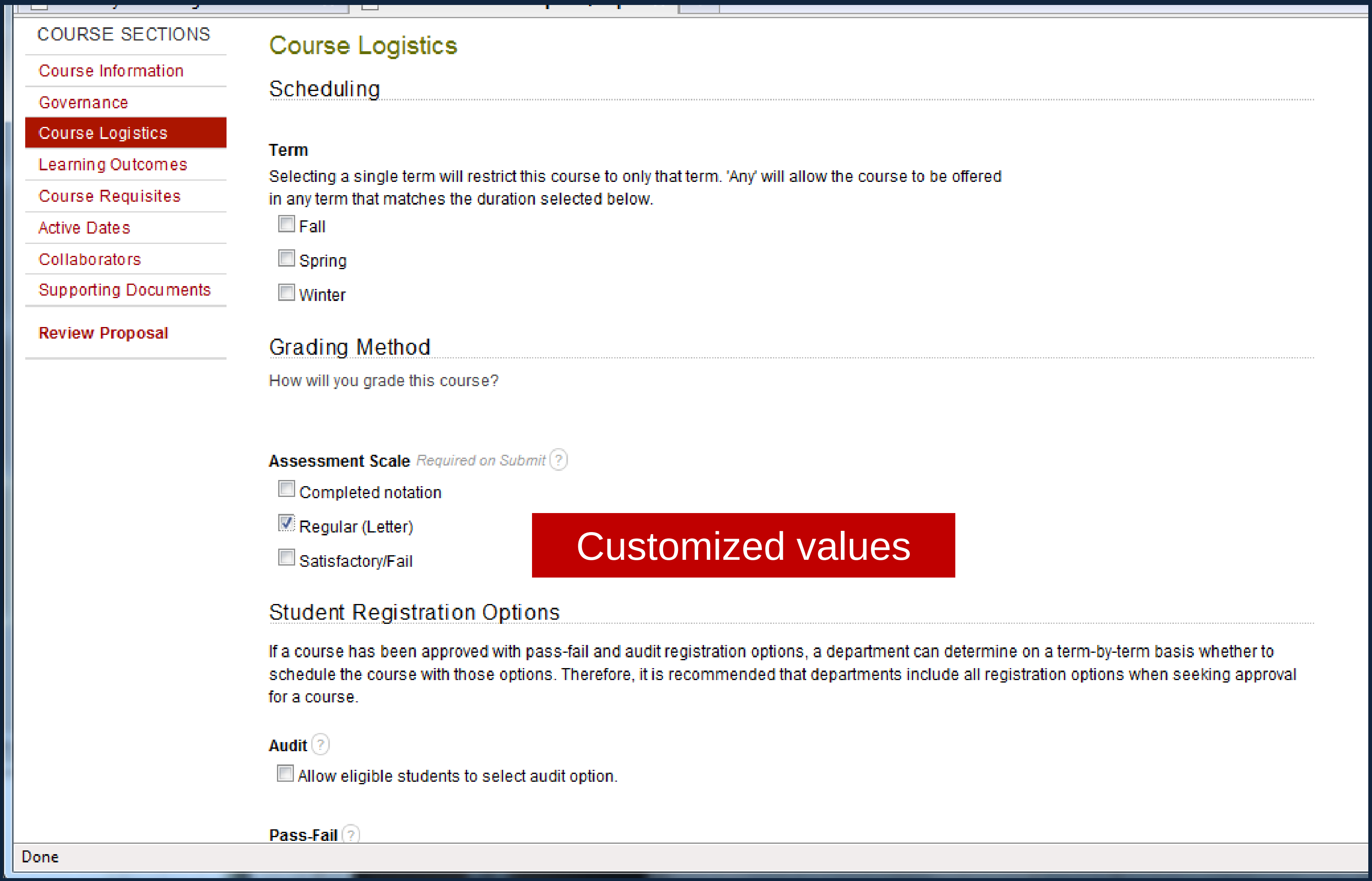
Curriculum Oversight Unit *Required on Submit*

This is the unit(s) responsible for the content of the program. This selection will determine the workflow/approval process for this proposal.

Done

Maryland data, constrained values

Create a Course – Course Logistics



COURSE SECTIONS

- Course Information
- Governance
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- Active Dates
- Collaborators
- Supporting Documents

Review Proposal

Course Logistics

Scheduling

Term

Selecting a single term will restrict this course to only that term. 'Any' will allow the course to be offered in any term that matches the duration selected below.

□ Fall

□ Spring

□ Winter

Grading Method

How will you grade this course?

Assessment Scale *Required on Submit* ?

□ Completed notation

☑ Regular (Letter)

□ Satisfactory/Fail

Customized values

Student Registration Options

If a course has been approved with pass-fail and audit registration options, a department can determine on a term-by-term basis whether to schedule the course with those options. Therefore, it is recommended that departments include all registration options when seeking approval for a course.

Audit ?

□ Allow eligible students to select audit option.

Pass-Fail ?

Done

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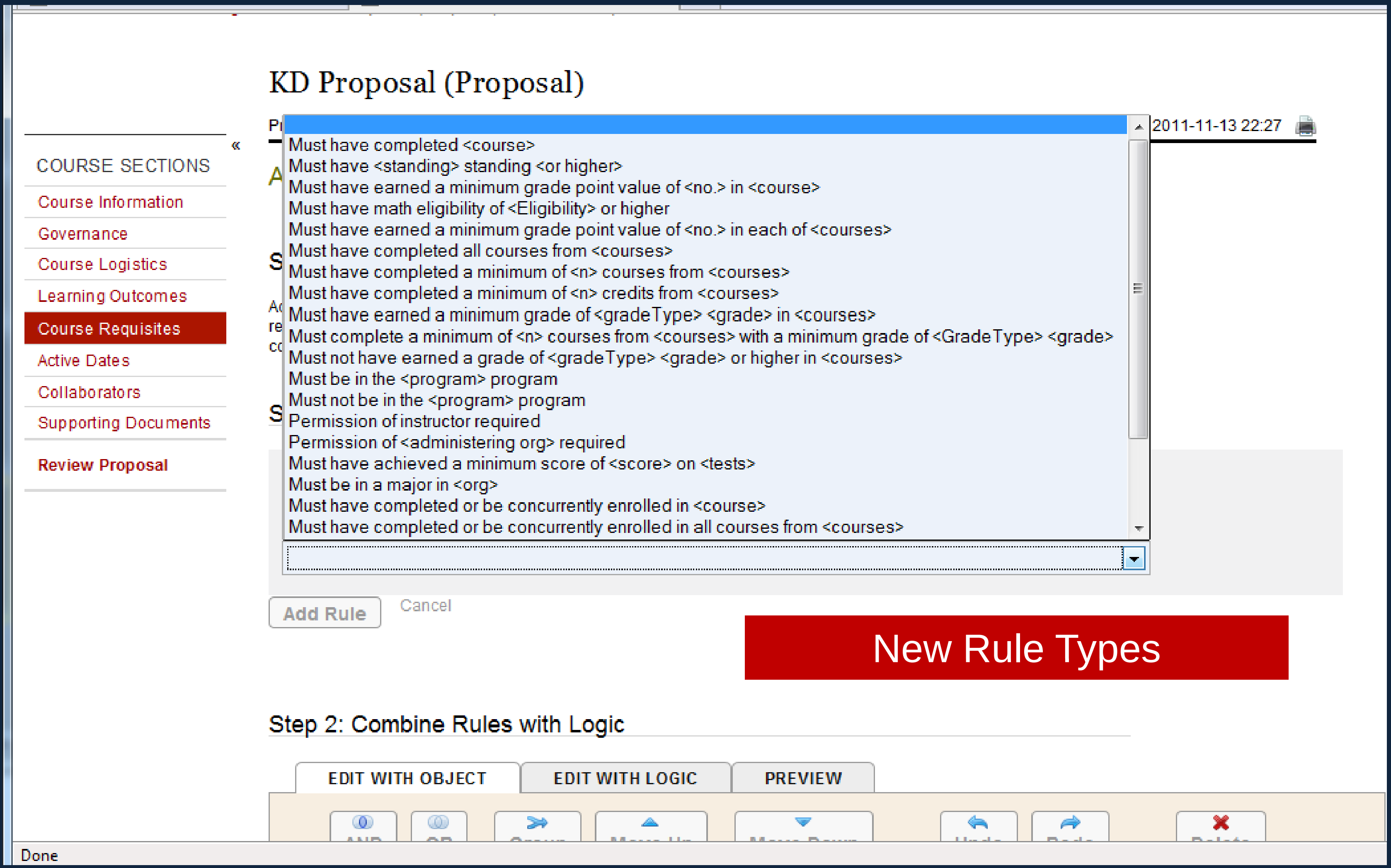
kuali student

Create a Course – Course Requisites



KD Proposal (Proposal)

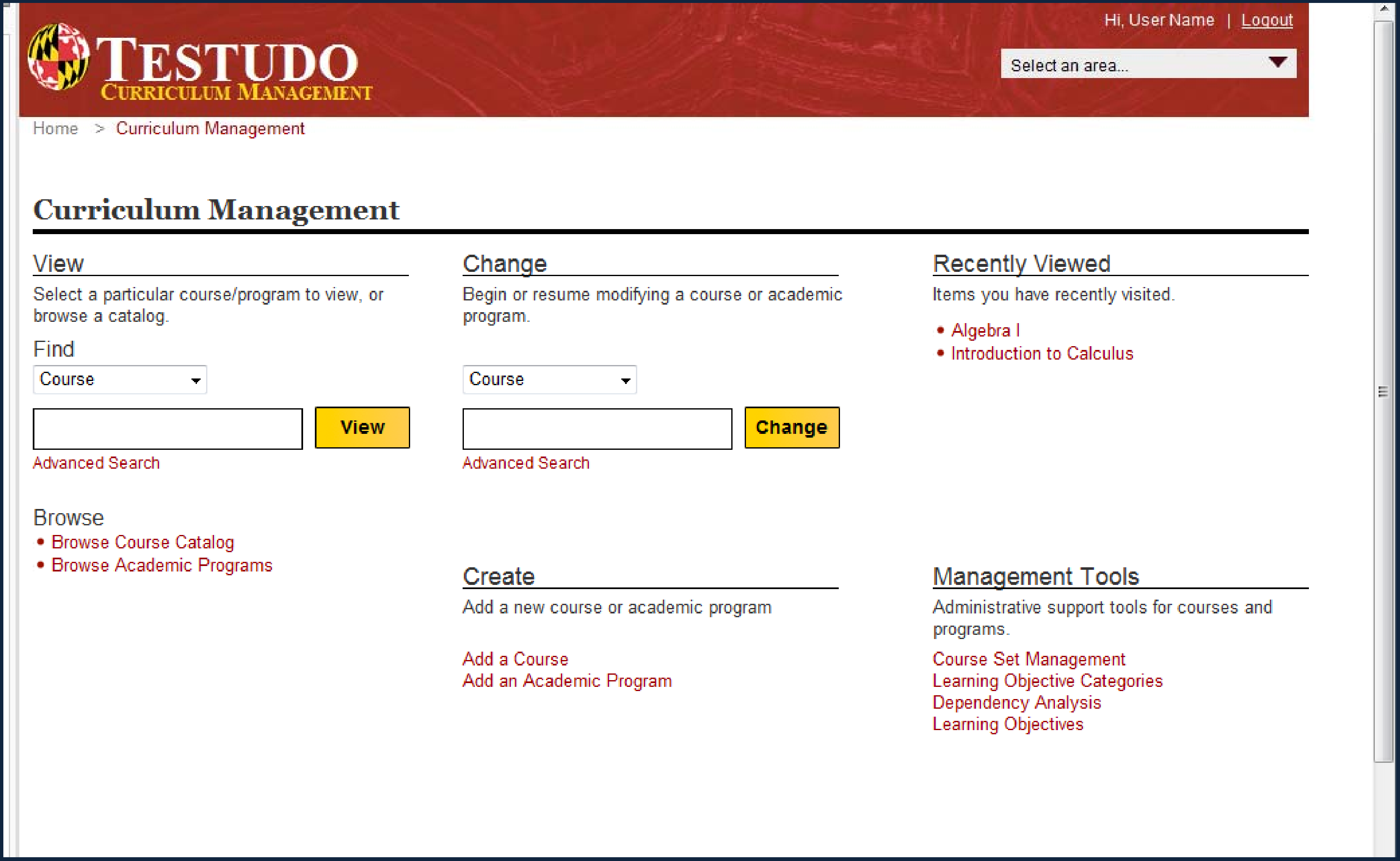
2011-11-13 22:27

- Must have completed <course>
- Must have <standing> standing <or higher>
- Must have earned a minimum grade point value of <no.> in <course>
- Must have math eligibility of <Eligibility> or higher
- Must have earned a minimum grade point value of <no.> in each of <courses>
- Must have completed all courses from <courses>
- Must have completed a minimum of <n> courses from <courses>
- Must have completed a minimum of <n> credits from <courses>
- Must have earned a minimum grade of <gradeType> <grade> in <courses>
- Must complete a minimum of <n> courses from <courses> with a minimum grade of <GradeType> <grade>
- Must not have earned a grade of <gradeType> <grade> or higher in <courses>
- Must be in the <program> program
- Must not be in the <program> program
- Permission of instructor required
- Permission of <administering org> required
- Must have achieved a minimum score of <score> on <tests>
- Must be in a major in <org>
- Must have completed or be concurrently enrolled in <course>
- Must have completed or be concurrently enrolled in all courses from <courses>

Step 2: Combine Rules with Logic

New Rule Types

Where We're Headed



Home > Curriculum Management

Curriculum Management

View

Select a particular course/program to view, or browse a catalog.

Find

Course ▾

[ ] View

Advanced Search

Browse

- Browse Course Catalog
- Browse Academic Programs

Change

Begin or resume modifying a course or academic program.

Course ▾

[ ] Change

Advanced Search

Create

Add a new course or academic program

Add a Course
Add an Academic Program

Recently Viewed

Items you have recently visited.

- Algebra I
- Introduction to Calculus

Management Tools

Administrative support tools for courses and programs.

Course Set Management
Learning Objective Categories
Dependency Analysis
Learning Objectives

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kuali student

Summary of Major areas of Work

- Data work – mapping, clean-up, loading
- Localization
  - UI
  - Syntax
  - Fields
- Authorization setup
- Workflow
- Rules
  - Configuration – types, categories
  - Data entry
- Retire a course

Lessons Learned - Management

- Management
  - Be Flexible
  - Prepare for the unexpected (technically and functionally)
  - High visibility, but low volume use and impact
  - Set manageable (small) scope
    - Set expectations
  - Stick to time box
  - System of record issues will need to be addressed

Lessons Learned - Functional

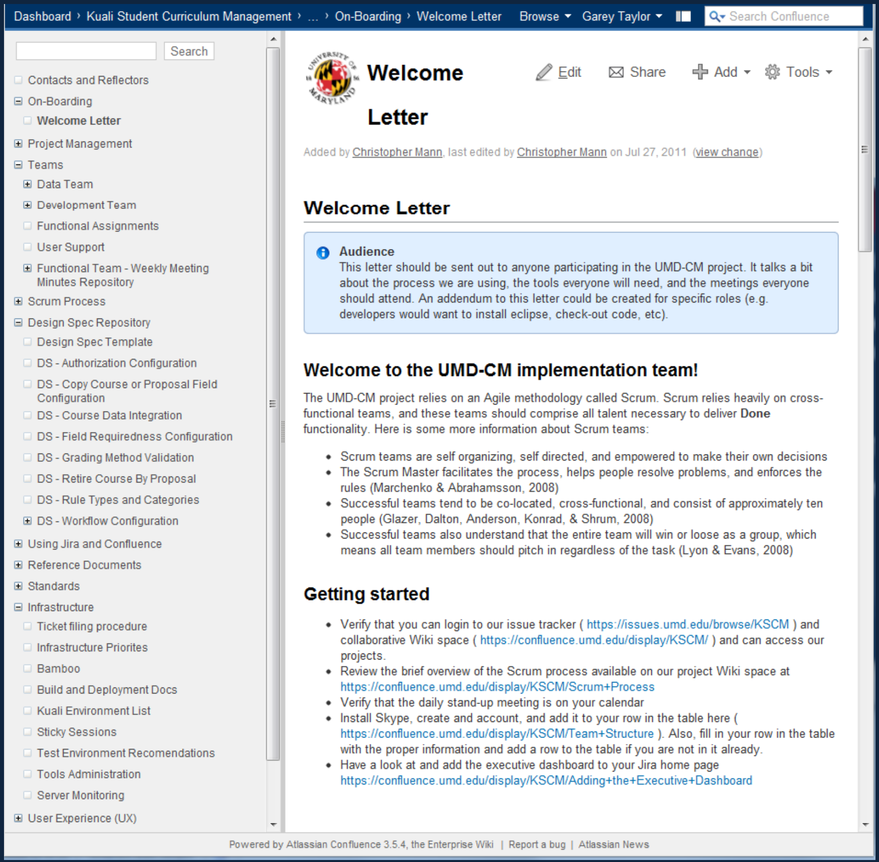
- Functional
  - Data work is a huge effort – start early
  - Sometimes you don't know enough to make the decisions
    - Development possibilities and directions
    - Changing campus needs and business processes
  - Software has features campus wants, but isn’t ready for
  - Timing of functional input can be challenging
    - “Hurry up and wait”
    - Dedicated analysis time
  - Find forgiving functional users – testers, pilot users
  - Be open to new collaboration tools, willing to adjust midstream
  - Difficult to balance timing of training and documentation development with software development

Lessons Learned - Technical

- Technical
  - Development Methodologies
  - Development Environment Setup
    - Development Tools (Confluence, Jira, Bamboo)
    - Local Overlay Project (Coding Environment)
    - Kuali Student 1.2.1
    - Server Environments
  - Data Load Testing
  - Authorization

Development Tools - Confluence

- Confluence – Wiki
  - Functional Documentation
    - Design Specs
  - Developer Documentation


Dashboard › Kuali Student Curriculum Management › ... › On-Boarding › Welcome Letter
Browse
Garey Taylor
Search Confluence
Search
Contacts and Reflectors
On-Boarding
Welcome Letter
Project Management
Teams
Data Team
Development Team
Functional Assignments
User Support
Functional Team - Weekly Meeting Minutes Repository
Scrum Process
Design Spec Repository
Design Spec Template
DS - Authorization Configuration
DS - Copy Course or Proposal Field Configuration
DS - Course Data Integration
DS - Field Requiredness Configuration
DS - Grading Method Validation
DS - Retire Course By Proposal
DS - Rule Types and Categories
DS - Workflow Configuration
Using Jira and Confluence
Reference Documents
Standards
Infrastructure
Ticket filing procedure
Infrastructure Priorites
Bamboo
Build and Deployment Docs
Kuali Environment List
Sticky Sessions
Test Environment Recomendations
Tools Administration
Server Monitoring
User Experience (UX)
Edit
Share
Add
Tools

Welcome Letter

Added by Christopher Mann, last edited by Christopher Mann on Jul 27, 2011 (view change)

Welcome Letter

Audience
This letter should be sent out to anyone participating in the UMD-CM project. It talks a bit about the process we are using, the tools everyone will need, and the meetings everyone should attend. An addendum to this letter could be created for specific roles (e.g. developers would want to install eclipse, check-out code, etc).

Welcome to the UMD-CM implementation team!

The UMD-CM project relies on an Agile methodology called Scrum. Scrum relies heavily on cross-functional teams, and these teams should comprise all talent necessary to deliver **Done** functionality. Here is some more information about Scrum teams:

- Scrum teams are self organizing, self directed, and empowered to make their own decisions
- The Scrum Master facilitates the process, helps people resolve problems, and enforces the rules (Marchenko & Abrahamsson, 2008)
- Successful teams tend to be co-located, cross-functional, and consist of approximately ten people (Glazer, Dalton, Anderson, Konrad, & Shrum, 2008)
- Successful teams also understand that the entire team will win or loose as a group, which means all team members should pitch in regardless of the task (Lyon & Evans, 2008)

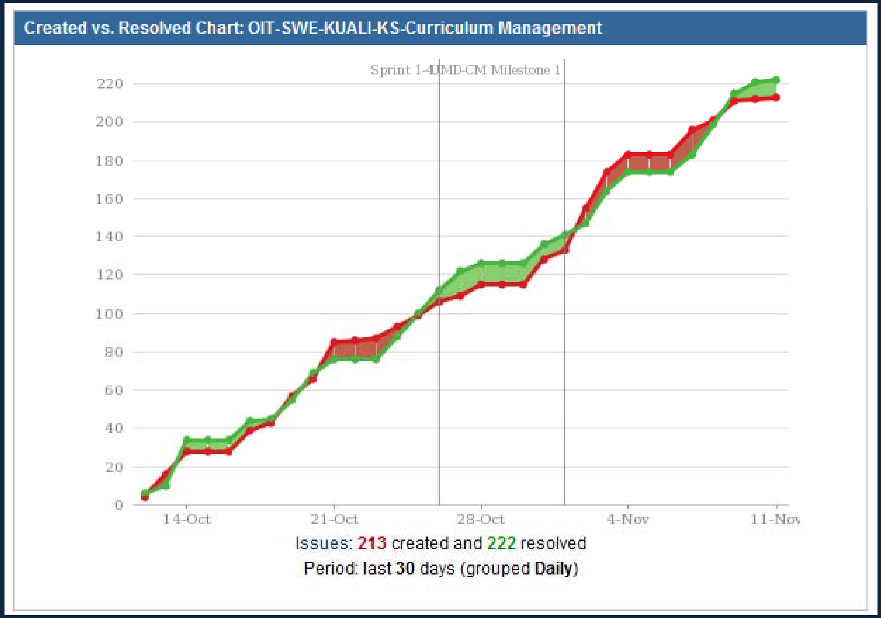
Getting started

- Verify that you can login to our issue tracker (https://issues.umd.edu/browse/KSCM) and collaborative Wiki space (https://confluence.umd.edu/display/KSCM/) and can access our projects.
- Review the brief overview of the Scrum process available on our project Wiki space at https://confluence.umd.edu/display/KSCM/Scrum+Process
- Verify that the daily stand-up meeting is on your calendar
- Install Skype, create and account, and add it to your row in the table here (https://confluence.umd.edu/display/KSCM/Team+Structure). Also, fill in your row in the table with the proper information and add a row to the table if you are not in it already.
- Have a look at and add the executive dashboard to your Jira home page https://confluence.umd.edu/display/KSCM/Adding+the+Executive+Dashboard

Powered by Atlassian Confluence 3.5.4, the Enterprise Wiki | Report a bug | Atlassian News

Development Tools - JIRA

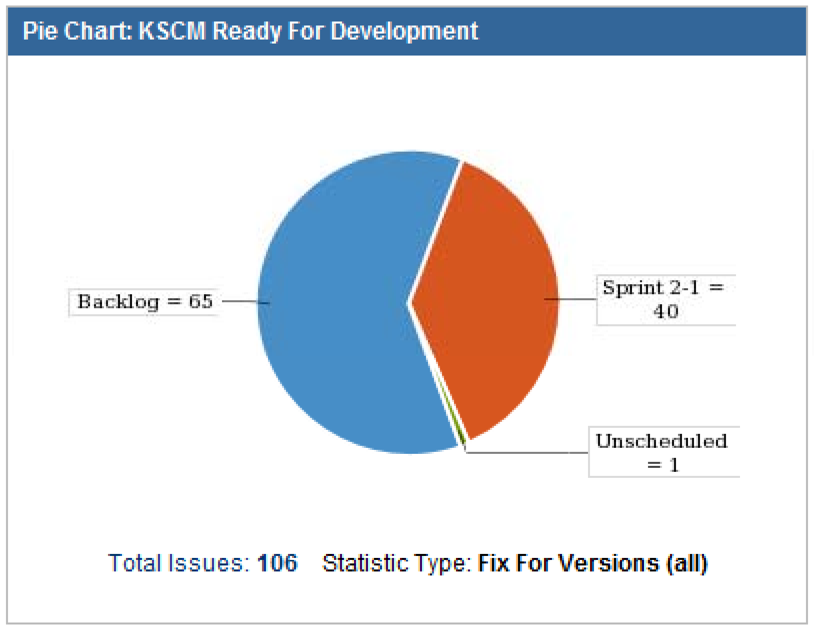
- JIRA – Issue Tracking
  - Functional Issue Tracking
  - Technical Issue Tracking



Created vs. Resolved Chart: OIT-SWE-KUALI-KS-Curriculum Management

Issues: **213** created and **222** resolved

Period: last **30** days (grouped **Daily**)

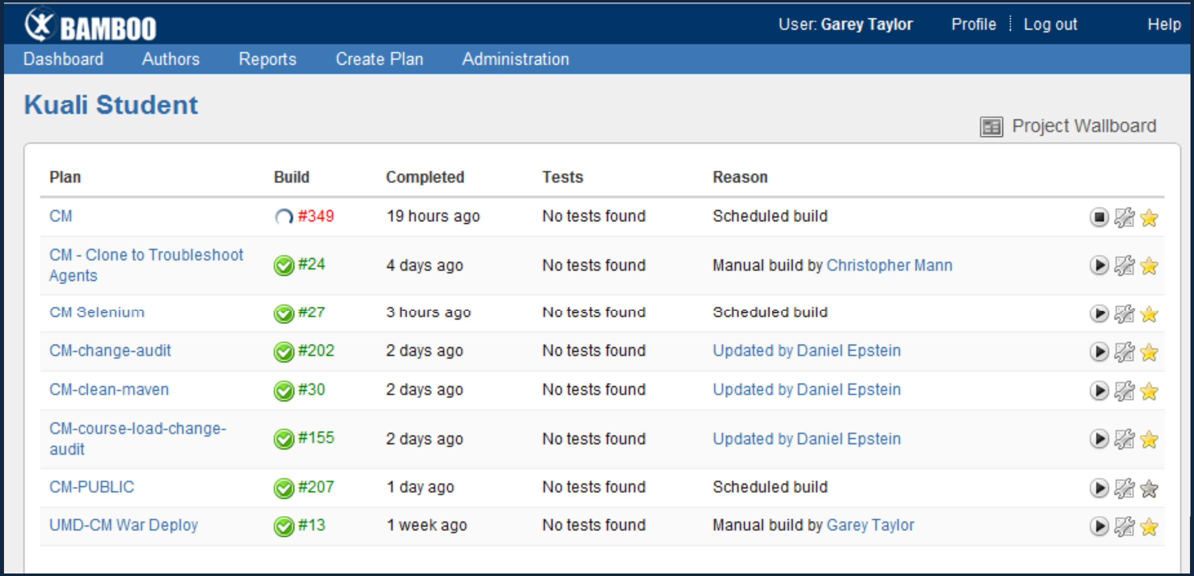


Pie Chart: KSCM Ready For Development

Total Issues: **106** Statistic Type: **Fix For Versions (all)**

Development Tools - Bamboo

- Bamboo– Continuous Integration
  - Test Code Compilation
  - Build Development Artifacts
  - Test Data Load: UM->KS
  - Test Deployment
  - Test UI via Selenium

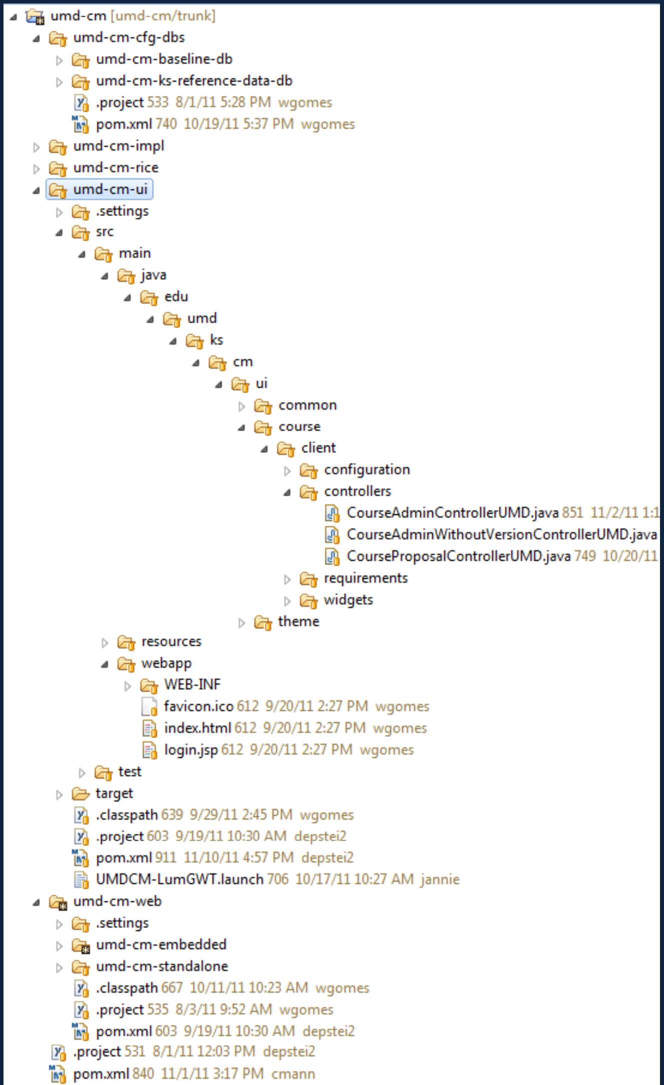


Kuali Student

Plan	Build	Completed	Tests	Reason
CM	#349	19 hours ago	No tests found	Scheduled build
CM - Clone to Troubleshoot Agents	✓ #24	4 days ago	No tests found	Manual build by Christopher Mann
CM Selenium	✓ #27	3 hours ago	No tests found	Scheduled build
CM-change-audit	✓ #202	2 days ago	No tests found	Updated by Daniel Epstein
CM-clean-maven	✓ #30	2 days ago	No tests found	Updated by Daniel Epstein
CM-course-load-change-audit	✓ #155	2 days ago	No tests found	Updated by Daniel Epstein
CM-PUBLIC	✓ #207	1 day ago	No tests found	Scheduled build
UMD-CM War Deploy	✓ #13	1 week ago	No tests found	Manual build by Garey Taylor

Local Development Environment

- Local Overlay Project
  - KS 1.2.1 Base Dependency
  - 5 Local Sub Projects
    - Umd-cm-cfg-dbs – DBs
      - Baseline
      - Developer Reference
    - Umd-cm-impl – Impl Overrides
    - Umd-cm-rice – Rice Overlay
    - Umd-cm-ui – UI Overrides
    - Umd-cm-web – WAR Deploys



```
umd-cm [umd-cm/trunk]
  umd-cm-cfg-dbs
    umd-cm-baseline-db
    umd-cm-ks-reference-data-db
    .project 533  8/1/11 5:28 PM  wgomes
    pom.xml 740  10/19/11 5:37 PM  wgomes
  umd-cm-impl
  umd-cm-rice
  umd-cm-ui
    .settings
    src
      main
        java
          edu
            umd
              ks
                cm
                  ui
                    common
                    course
                      client
                        configuration
                        controllers
                          CourseAdminControllerUMD.java 851  11/2/11 1:1
                          CourseAdminWithoutVersionControllerUMD.java
                          CourseProposalControllerUMD.java 749  10/20/11
                        requirements
                        widgets
                    theme
        resources
        webapp
          WEB-INF
          favicon.ico 612  9/20/11 2:27 PM  wgomes
          index.html 612  9/20/11 2:27 PM  wgomes
          login.jsp 612  9/20/11 2:27 PM  wgomes
      test
    target
    .classpath 639  9/29/11 2:45 PM  wgomes
    .project 603  9/19/11 10:30 AM  depstei2
    pom.xml 911  11/10/11 4:57 PM  depstei2
    UMDCM-LumGWT.launch 706  10/17/11 10:27 AM  jannie
  umd-cm-web
    .settings
    umd-cm-embedded
    umd-cm-standalone
    .classpath 667  10/11/11 10:23 AM  wgomes
    .project 535  8/3/11 9:52 AM  wgomes
    pom.xml 603  9/19/11 10:30 AM  depstei2
  .project 531  8/1/11 12:03 PM  depstei2
  pom.xml 840  11/1/11 3:17 PM  cmann
```

KS 1.2.1

- “Special” Collaborative Patch Branch
  - First Full Reference Implementation
    - Critical Issues Will Be Found
  - Collaboration Between UMD, NWU, and KS

Server Environments

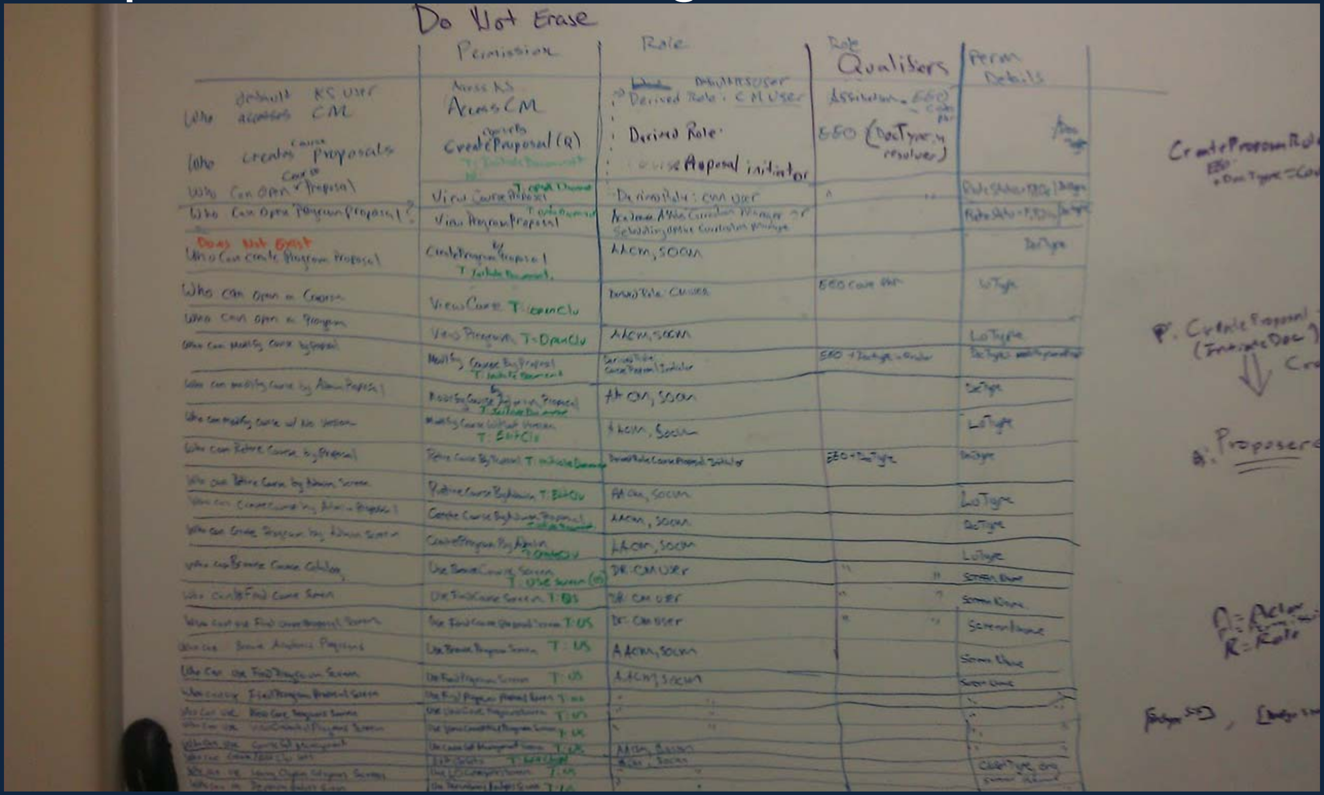
- Dev
  - Nightly Build – Full Data Load
- Public
  - Nightly Build – Reference Impex Load
- QA
  - Manual Build – Full Data Load
  - Duplicate of Production Env
    - 4 KS App Servers Running Parallel
- Production
  - Manual Build
    - One Initial Load
    - Nightly Update Load

Data Load Testing

- Tool to Populate KS Implementation with UMD Data
- Loads into KS via Web Services
  - DB to DB was deemed to complex
  - Web Service Contract Stability
  - Low Volume
- Full Load run every night to test iterative changes
- Production loads will only update changes

Authorization

- KS 1.1 & 1.2 Partially Implemented Authorization
- Adding Standard UI Authorization framework
- Finer grained permission checking



Do Not Erase

	Permission	Role	Role Qualifiers	Perm Details
Who accesses CM default KS user	Access KS Access CM	DefaultKSUser Derived Role: CM User	Assignation - EEO - Course plan	
Who creates Course proposals	Create Proposal (R) Course T: Initiate Document	Derived Role: Course Proposal initiator	EEO (DocType, resolver)	DocType
Who Can Open Course Proposal	View Course Proposal T: Open Document	Derived Role: CM User	"	RuleState=[illegible] | DocType
Who Can Open Program Proposal?	View Program Proposal T: Open Document	Academic Affairs Curriculum Manager or Scheduling office Curriculum Manager		RuleState=[illegible] | DocType
Does Not Exist Who Can create Program Proposal	Create Program Proposal T: Initiate Document	AACM, SOCM		DocType
Who can Open a Course	View Course T: OpenClu	Derived Role: CM User	EEO Course plan	LuType
Who can open a Program	View Program T: OpenClu	AACM, SOCM		LuType
Who Can Modify Course by Proposal	Modify Course By Proposal T: Initiate Document	Derived Role Course Proposal Initiator	EEO + DocType + Proposal [illegible]	DocType [illegible]
Who can modify Course by Admin Proposal	Modify Course By Admin Proposal T: Initiate Document	AACM, SOCM		DocType
Who can modify Course w/ No Version	Modify Course Without Version T: EditClu	AACM, SOCM		LuType
Who can Retire Course by Proposal	Retire Course By Proposal T: Initiate Document	Derived Role Course Proposal Initiator	EEO + DocType	DocType
Who can Retire Course by Admin Screen	Retire Course By Admin T: EditClu	AACM, SOCM		LuType
Who can Create Course by Admin Proposal	Create Course By Admin Proposal T: Initiate Document	AACM, SOCM		DocType
Who can Create Program by Admin Screen	Create Program By Admin T: CreateClu	AACM, SOCM		LuType
Who can Browse Course Catalog	Use Browse Course Screen T: Use Screen (US)	DR: CM User	" "	Screen Name
Who can use Find Course Screen	Use Find Course Screen T: US	DR: CM User	" "	Screen Name
Who can use Find Course Proposal Screen	Use Find Course Proposal Screen T: US	DR: CM User	" "	Screen Name
Who can Browse Academic Programs	Use Browse Program Screen T: US	AACM, SOCM		Screen Name
Who Can Use Find Program Screen	Use Find Program Screen T: US	AACM, SOCM		Screen Name
Who can use Find Program Proposal Screen	Use Find Program Proposal Screen T: US	"		"
[illegible]	[illegible] T: US	"		"
[illegible]	[illegible] T: US	"		"
[illegible]	[illegible] T: US	AACM, SOCM		"
[illegible]	[illegible] T: EditClu	AACM, SOCM		CluType, org
[illegible]	[illegible] T: US	"		Screen Name
[illegible]	[illegible] T: US	"		

CreateProgramRole
EEO + DocType = Cou

P: CreateProposal (InitiateDoc)
Cre

Q: Proposer

Q: Actor
R: Role

Questions?

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