

**Larry L. Sautter Award for Innovation in Information Technology – 2018**  
**R'Summer – Administrative Process Management System**

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**Project Partners:** 45 academic department partners, Registrar Office, Financial Aids, Controller Office

**Project Description:**

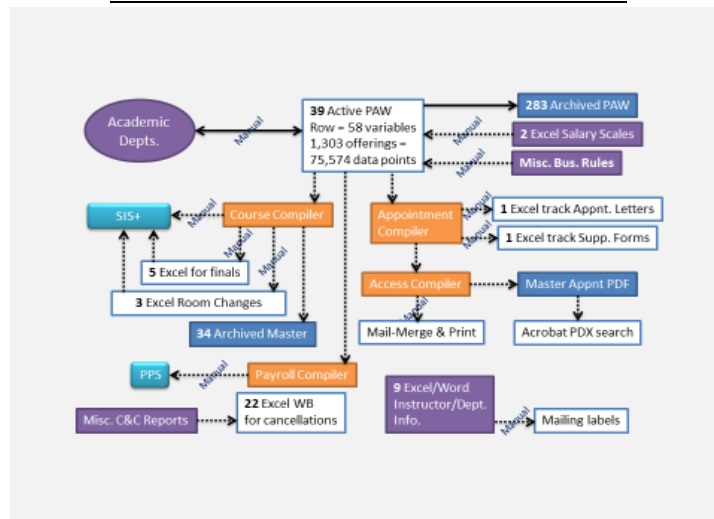
R'Summer is an online, private cloud-based tool for the administration of UCR's summer quarter. In real time, the system applies business rules and policies while managing and generating key data used by Summer Sessions (SS), 45 academic departments, and the approximate 730 instructional appointees.

**Project Narrative:**

**Problem and Goals:**

UC summer quarters/semesters operate independently from regular year quarters/semesters, and are commonly administered through a centralized office of SS. UCR's office of SS is comprised of 3 FTE and is responsible for all summer course and finals scheduling, enrollment management, and instructional hiring. SS regularly partners with 45 academic departments/programs to schedule ~650 primary courses supported by ~625 secondary sections. The administration of summer quarter had evolved over the years to use (and email between partners) numerous Excel spreadsheets; to manually compile data using Access and Acrobat tools; to manually maintain/reference detailed business rules, policies, and appointment information; and to manually generate and distribute letters of appointment (see SS' Pre-R'Summer Administration Structure diagram).

SS' Pre-R'Summer Administration Structure



A process audit found SS produced over 400 separate data records (not including ~775 hard copy instructional letters of appointment, as well as ~650 individually hand filled out Supplemental Forms using NCR paper) each summer. Communications (meetings, phone, and email) between SS and its stakeholders were too numerous to record. As summer quarter was growing in size and complexity, a new administrative approach was desperately needed.

**Solution:**

Collaborating with IT team, and experienced academic and administrative partners, SS mapped out its entire data administration flow and key business rule structures from all inputs to all outputs. The team then designed an optimized information management processes to reduce data touches, automate business rule application, maximize data access while minimizing the complexity of coordinating and executing the administration of summer quarter. Emphasis was placed on making the system as user friendly and as easy to understand as possible. A beta R'Summer system was launched 2012/2013 managing the core course proposal and appointee information processes. Three evaluation surveys were sent to 71 users from 45 departments during the initial testing phase, all of which showed high levels of satisfaction for the system and its interfaces, encouraging further development. The production version of R'Summer (version 1.C) was implemented 2014/2015 with four integrated modules (Scheduling, Appointments, Letters, Payroll) operating out of a centralized database with standalone business rule tools. At that time, the system was presented to Ron Coley, UCR's Vice Chancellor of Business and Administrative Services, as an example of a "Lean" process management system. Vice Chancellor Coley was so pleased with the system that he called it "sliced bread" and encouraged further development and sharing of the system. Ongoing internal and external user evaluations have focused on improving R'Summer's usability as well as adding functionality.

SS has been fortunate to be able to continue investing in the system regularly, with summer 2016 upgrading to version 1.D; summer 2017 upgraded to version 1.E, and version 1.F for summer 2018. Input from partners is already being collected for version 1.G upgrade for summer 2019. The following provides a brief overview of each module's current functions:

**Course Scheduling Information**

- Custom session controls
- Global due dates
- By department due date overrides
- Color coded data status
- Schedule copy tool
- Individual course configuration tools
- Automated propagation of any changes to course configuration
- Drop down scheduling tools
- Automatically calculated meeting lengths
- Split meeting day/time tool
- Automated finals day/time calculation
- Finals exception override
- Easy cancellation with automated propagation and email messages
- Robust notes and change history
- Data export to Excel
- Ability to attach PDF files
- Banner integration

**Appointment Information**

- Global due dates
- By department due date overrides
- Color coded data status
- Drop down appointee assignment
- Automatically calculated compensation
- Compensation exception tool with 14 input flags and 16 overrides
- Workload/compensation cap controls

- Automated propagation of any changes to appointee/appointment
- Team teaching workload splitting tools
- Tiered appointment capability
- Appointment proration tools
- Appointee review hold
- Robust notes and change history
- Easy cancellation with automated propagation and email messages
- Ability to attach PDF files
- Data export to Excel

**Letters of Appointment and Supplemental Forms**

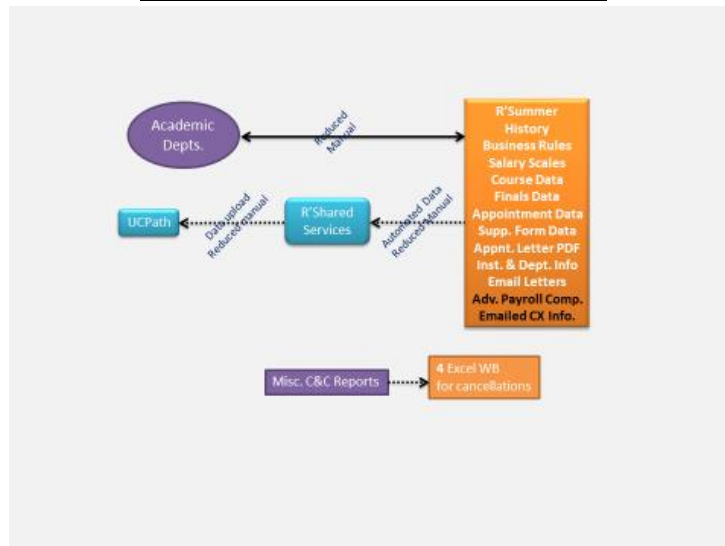
- Secure electronic letter distribution
- Electronic signature accept/decline for both
- appointment and Supp. Form
- Real time letter and Supp. Form access and status
- Automated appointment change flag
- Automated Supp. Form management
- Appointment information grouped by title code
- Exportable to PDF

**Payroll**

- Color coded data status
- Auto UCPATH+Title code consolidation
- Real time change updates
- Streamlined working screen with key data checks
- Ability to attach PDF files
- Robust notes and change history
- UCPATH integration ability

Mapping SS' new administrative structure using R'Summer (see map below) shows the vast simplification of how data is processed using the R'Summer system. Not illustrated in the map are the numerous automated business rule applications applied by R'Summer which greatly reduce the number of cross referencing man hours as well as minimizes errors. These tools have proved invaluable with maintaining proper adherence to labor union guidelines and hiring policies. Additionally, the academic department users who only interact with SS once a year have continually praised the simplicity and ease of use of the system (please see the Evaluation section below). Maintaining cooperative and supportive relationships between SS and its 45 academic departments/program partners is critical for the success of summer quarter.

**SS' R'Summer Administration Structure**



**Moving Forward:**

R'Summer was initially conceived to connect with UCR's course management system (SIS+), which was put on hold as the campus transitioned to Banner. Since UCR's implementation of Banner is being stable, the team started on proceeding with integrating enrollment management with Banner in early 2018. An added benefit of the initial integrated design philosophy is that it is going to be expanded to the new UCPath project. The R'Summer team has been working with the UCPath and R 'Shared Services (the intermediary service team between SS and UCPath) since summer 2017. Both teams unanimously decided to use R'Summer rather than their own data communication processes/systems, and plans are being made to integrate R'Summer into the new centralized payroll process. Once completed, summer instructional compensation data will move relatively seamlessly from SS to UCPath, with no need to reenter any data from initial appointment creation through payroll execution. Enhancing the user interface with Responsive Design to support mobile computing is currently under planning.

**Evaluation:**

The success of R'Summer demonstrates a very high ROI. SS sends an annual "Customer Service Survey" to partners asking for feedback. Since running R'Summer, input from system users has been sought. Responses to general overview questions have been overwhelmingly positive (see table below).

	Did you/your department find the pre-assembled list of offerings provided for helpful?	If you scheduled classes, did you find the pre-populated classroom assignments helpful?	If you scheduled classes, did you find the pre-populated class meeting day/times helpful?	Did you/your department prefer having the classroom assignments blank, or do you prefer them being pre-populated with the prior year's assignments?	What is your overall opinion of the R'Summer system?
<b>2015</b>	24 yes / 2 no	-	-	-	18 satisfied / 2 neutral / 1 <Sat.
<b>2016</b>	13 yes / 0 no / 10 n/a	9 yes / 2 no / 12 n/a	11 yes / 0 no / 12 n/a	-	11 satisfied / 1 <Sat. / 4 n/a
<b>2017</b>	19 yes / 1 no / 9 n/a	-	-	6 yes / 2 no / 4 n/a	5 satisfied / 1 n/a

**Technology:**

R'Summer applies Model-View-Controller user interface architecture, J2EE, Struts, Spring and Hibernate frameworks, and MySQL database, Tomcat application server, SSL encryption, and Linux OS. Unified Modeling Language is used for data modeling to simplify the interaction with users for system requirements analysis and the implementation of the utilization of multiple-tier distributed end-to-end Java J2EE application framework. Nested multiple Finite State Machines are used to streamline the business processes management. The R'Summer is designed with presentation, persistence, business, and domain model four-layer software architecture. Each layer has a distinct responsibility in the R'Summer application and does not mix functionality with other layers. Each application layer is isolated from other layers but allows an interface for communication between them. This software architecture design provides the flexibility and simplicity to add or revise business logics, policies and data models to meet the requirements of the frequent changes of the academic programs and employment regulatory.

- R'Summer is a portable web-based enterprise system that supports multi-platform deployment.

- Users are authenticated through CAS which can be integrated with campus identity management system.
- It streamlines payroll business process with UCPath.
- It can integrate with student information system e.g. Banner.
- It fulfills compliance with labor union agreements.
- It supports all major browsers: Edge, IE 11, Firefox, Chrome, and Safari.
- Due to its flexibility and portability of the system architecture and application design, R'Summer may easily be adopted for other summer session at UC.

Below are screen shot examples from <https://rsummer.ucr.edu> (secured login is required).

### Summer Session Office Course Scheduling UI:

Call #	Sess	Course	Sect	Type	Course Title	ST	Cross-Listed	ME Unit	CRAMS	Day	Time	Location	Final Day	Final Time	Final Location	Proposed Title	
72796	B	AHS-0105	B01	LEC	Topics In Art And Architectura...			25	5.0	3.0	TR	2:10 PM - 5:00 PM	ARTS 335	S - 9/1	1:00 PM - 3:00 PM	Arts 335	Lecturer
72707	B	AHS-0105	B21	DIS	Topics In Art And Architectura...			25	0.0	1.0	TR	5:10 PM - 8:00 PM	ARTS 335				Teaching Assistant
79002	A	AHS-020	A01	LEC	Introduction To Media Art		MCS-023	50	4.0	3.0	TR	1:10 PM - 4:00 PM	ARTS 335	S - 7/28	1:00 PM - 3:00 PM	ARTS 335	Lecturer
70003	A	AHS-020	A21	DIS	Introduction To Media Art		MCS-023	25	0.0	1.0	TR	4:10 PM - 5:00 PM	ARTS 335				Teaching Assistant
72819	A	AHS-020	A22	DIS	Introduction To Media Art		MCS-023	25	0.0	1.0	TR	4:10 PM - 5:00 PM	ARTS 214				Teaching Assistant
70005	A	AHS-182	A01	LEC	Visual Art And Visual Theory A...			40	4.0	3.0	MW	10:10 AM - 1:00 PM	ARTS 335	F - 7/27	10:30 AM - 12:30 PM	ARTS 335	Lecturer
70018	A	ANTH-001	A01	LEC	Cultural Anthropology			35	4.0	3.0	MW	1:10 PM - 4:00 PM	WAT 2240	F - 7/27	3:30 PM - 5:30 PM	WAT 2240	Lecturer PSEOE
70019	A	ANTH-001	A21	DIS	Cultural Anthropology			35	0.0	1.0	MW	4:40 PM - 5:30 PM	WAT 2240				Teaching Assistant
70020	B	ANTH-001	B01	LEC	Cultural Anthropology			35	4.0	3.0	MW	1:10 PM - 4:00 PM	WAT 1111	F - 8/31	3:30 PM - 5:30 PM	WAT 1111	Associate In
70021	B	ANTH-001	B21	DIS	Cultural Anthropology			35	0.0	1.0	MW	4:40 PM - 5:30 PM	WAT 1111				Teaching Assistant
72691	A	ANTH-005	A01	LEC	Introduction To Archaeology			30	5.0	3.0	TR	1:10 PM - 4:00 PM	WAT 1111	S - 7/28	1:00 PM - 3:00 PM	WAT 1111	Associate In
72692	A	ANTH-005	A21	DIS	Introduction To Archaeology			30	0.0	1.0	TR	4:40 PM - 5:30 PM	WAT 1111				Teaching Assistant
72693	B	ANTH-007	B01	LEC	Introduction To Linguistic Art...			30	4.0	3.0	MTWR	9:40 AM - 11:00 AM	SPR 2356	F - 8/31	10:30 AM - 12:30 PM	SPR 2356	Associate In
72694	A	ANTH-100	A01	LEC	History Of Anthropological The...			30	4.0	3.0	MTWR	9:40 AM - 11:00 AM	SPR 2356	F - 7/27	10:30 AM - 12:30 PM	SPR 2356	Assistant Professor
70034	A	ANTH-118	A01	LEC	Origins Of Cities			40	4.0	3.0	MTWR	10:10 AM - 11:30 AM	SPR 2339	F - 7/27	10:30 AM - 12:30 PM	SPR 2339	Associate In
70035	B	ANTH-120	B01	LEC	Language And Culture			45	4.0	3.0	MTWR	11:10 AM - 12:30 PM	SPR 2343	F - 8/31	1:00 PM - 3:00 PM	SPR 2343	Associate In
72270	B	ANTH-120	B21	CON	Language And Culture			50	0.0	1.0	TBA						TBA
70037	B	ANTH-127	B01	LEC	Political Anthropology			50	4.0	3.0	MTWR	12:40 PM - 2:00 PM	SPR 2355	F - 8/31	3:30 PM - 5:30 PM	SPR 2355	Associate In
70041	B	ANTH-158	B01	LEC	Biological Approaches To Medic...			40	4.0	3.0	MTWR	2:10 PM - 3:30 PM	WAT 2240	F - 8/31	3:30 PM - 5:30 PM	WAT 2240	Associate In
70042	A	ANTH-162	A01	LEC	Culture And Medicine			40	4.0	3.0	MTWR	12:40 PM - 2:00 PM	SPR 2339	F - 7/27	3:30 PM - 5:30 PM	SPR 2339	Associate In
72844	A	ANTH-162	A21	CON	Culture And Medicine			40	0.0	1.0	TBA						TBA
72695	B	ANTH-165E	B01	LEC	Methods In Archaeology			30	4.0	3.0	TR	1:10 PM - 4:00 PM	WAT 1111	S - 9/1	1:00 PM - 3:00 PM	WAT 1111	Associate Professor
73040	A	ANTH-184	A01	FLD	Field Course In Anthropology	FLEAP		20	4.0	3.0		Travel Study					Professor Lecturer
73041	A	ANTH-190	A01	IND	Special Studies	FLEAP		20	4.0	3.0		Travel Study					Professor Lecturer
70069	B	ARBC-004	B01	LEC	Intermediate Arabic			25	4.0	4.0	MTWR	12:10 PM - 2:00 PM	INTS 2134	F - 8/31	1:00 PM - 3:00 PM	INTS 2134	Lecturer
70071	S09	ARC-035	002	LAB	INTRMEDIATE ALGEBRA WRKSHOP/IAW			20	0.0	3.0	MWF	1:10 PM - 2:30 PM	ONLINE Online				Reader (Undergraduate)

### Academic Department Courses UI:

Course Num	Class Type	Course Title	Unit Value	CRAM Value	TA	Cross-listed As
CHEM-001A	LEC	General Chemistry	4.0	3.0	0.0	
CHEM-001A	DIS	General Chemistry	0.0	1.0	25.0	
CHEM-001B	LEC	General Chemistry	4.0	3.0	0.0	
CHEM-001B	DIS	General Chemistry	0.0	1.0	25.0	
CHEM-001C	LEC	General Chemistry	4.0	3.0	0.0	
CHEM-001C	DIS	General Chemistry	0.0	1.0	25.0	
CHEM-005	LEC	Quantitative Analysis	5.0	3.0	0.0	
CHEM-005	LAB	Quantitative Analysis Laboratory	1.0	3.0	100.0	
CHEM-012A	LEC	Organic Chemistry	4.0	3.0	0.0	
CHEM-012A	LAB	Organic Chemistry Laboratory	0.0	4.0	50.0	
CHEM-012B	LEC	Organic Chemistry	4.0	3.0	0.0	
CHEM-012B	LAB	Organic Chemistry Laboratory	0.0	4.0	50.0	
CHEM-012C	LEC	Organic Chemistry	4.0	3.0	0.0	
CHEM-012C	LAB	Organic Chemistry Laboratory	0.0	4.0	50.0	
CHEM-014A	LAB	General Chemistry Laboratory	1.0	3.0	50.0	
CHEM-014B	LAB	General Chemistry Laboratory	1.0	3.0	50.0	
CHEM-014C	LAB	General Chemistry Laboratory	1.0	3.0	50.0	
CHEM-109	LEC	Survey Of Physical Chemistry	4.0	3.0	0.0	
CHEM-109	DIS	Survey Of Physical Chemistry	0.0	1.0	25.0	
CHEM-150A	LEC	Inorganic Chemistry	4.0	3.0	0.0	
CHEM-150A	DIS	Inorganic Chemistry	0.0	1.0	25.0	