Request for Proposals

DAACS Engine application development

and implementation project

Excelsior College

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# Introduction

## Background of Diagnostic Assessment & Achievement of College Skills (DAACS)

Identifying and addressing the varied levels of preparedness of newly enrolled college students is one of the biggest issues facing higher education today. Currently, most institutions address this issue in two steps: (1) administer a required placement exam to incoming students (that assesses only reading, writing, and mathematics); and (2) place students into a remediation program if they do poorly on the placement exam. Unfortunately, this approach has been shown to be ineffective. Placement exams fail to accurately predict student success and remediation programs hinder progress toward a degree since the majority of students drop out of these noncredit courses that operate in isolation from the classroom, with no regard for program of study requirements. We propose to replace this faulty system with a formative assessment as means for students to assess their abilities and then develop personalized strategies, with guidance, to attain college-level skills.

## The DAACS Approach

The concept is simple, develop a series of assessments and a technical platform to administer those assessments electronically. When a student completes the assessments, they are immediately presented with their score as well as options for improving their performance (and hopefully their chances of success in their postsecondary academic pursuits). If our hypothesis is correct, student academic achievement will improve, due to our intervention.

DAACS will combine scientifically developed assessment tools and web-application technologies as the vehicle to orchestrate the 1) delivery of assessments, 2) collection assessment data, and 3) delivery of tailored feedback to the student about methods and means for improvement. The program is funded for four years via a Department of Education grant. A portion of those grant funds has been reserved for the purpose of developing the DAACS technology.

## The DAACS Assessments

Currently in development by a team of recognized scholars, there are four discrete assessments within the DAACS framework. The purposes of the assessments will be to evaluate the strengths and weaknesses of students within the categories of: 1) math, 2) writing, 3) reading, and 4) “college skills”. “College Skills” is broad-based psychometric exam that will develop a picture of the student’s motivation, grit (stick-to-it and resilience), meta-cognition (thinking, planning, and assessment / reassessment of approaches to learning), etc. Each assessment (with the exception of the writing portion) will be comprised of a pool of test questions. One component of the DAACS Engine, a computer adaptive testing module, will select the appropriate type and sequence of questions, based upon a pre-configured set of parameters. The writing assessment should consist of a writing prompt, presented to the student, serving as the student’s starting-point for compiling a writing sample, with a text box receiving the student’s compilation.

## The Academic Component of the Study

Although, the tangible products of DAACS must include an application (testing and data collection platform), DAACS should be seen primarily as a scientific and academic endeavor with an eye toward improving student success rates in the postsecondary environment. As data is collected, research analysts will monitor the performance of the DAACS students, over a period spanning years. The objective of the research analysis is to determine whether or not the intervention (in this case, DAACS) has had any effect. The study-proper will use DAACS-students as our treatment population and the untreated student population as the study control. Researchers will formulate and adjust data queries and perform statistical analyses, among and between the treatment and control groups, in order to discern any effects.

Another output from the research analysis will be feedback on opportunities to improve the efficacy of the DAACS approach. Analysts will study various aspects of each assessment to discern their ability to categorize student performance. Further, analysts will measure and report upon the efficacy of the interventions, which are to be delivered to the student at the time the student finishes an assessment.

## Long-Term Vision

Once the data from several thousand assessments has been collected, the data will be mined by research analysts to determine what, if any, impact the DAACS Program had on the students. We expect to reach this threshold of collected student assessment data, sometime mid-2017 or in 2018.

Beyond the scope of the DAACS grant period, we expect that the DAACS approach will eventually be adopted by other colleges and universities that seek to improve their approach to student success. Therefore, our application development approach combines some important design criteria: 1) the use of low-cost / no-cost technologies (i.e. GNU or open-source), 2) use of best-practice software design practices (OOP) as well as 3) creation of an easily-installed package, such that the technology can be installed and used by other institutions, without the need for a large investment of time and resources.

## Purpose of the RFP

This Request for Proposal (RFP) is being issued to obtain responses from qualified software development vendors regarding their specific qualifications, ability to meet specific functional requirements and willingness to make a commitment to perform the integration work in the development and deployment of integrated Excelsior College products.

Excelsior College seeks functional and technical expertise available from a web application vendor in order to develop, implement, and support the DAACS Engine. In addition, Excelsior College seeks to leverage the vendor’s use of appropriate software tool sets and adherence to a bidder selected project management methodology to assure successful project completion and minimize risk.

Vendors are strongly encouraged to contribute their wisdom and experience via the response. Content of the RFP may be modified by the respondent, in order to better match the vendors approach and desired work breakdown structure. However, the format and mandatory components of the responses (defined in subsequent sections) must remain intact. Deviations from the required format and required components for a response will disqualify your response. When in doubt, ask.

## About Excelsior

Excelsior College provides educational opportunity to adult learners with an emphasis on those historically underrepresented in higher education. The College meets students where they are — academically and geographically, offering quality instruction and the assessment of learning.

Excelsior College was founded in 1971 by the New York State Board of Regents, and was originally known as the Regents External Degree Program (REX). Initial development of the College was funded by major grants from the Ford Foundation and the Carnegie Corporation. From 1971 until 1998, Regents College (as it became known in 1986) operated as a program of the Board of Regents (which also served as its board of trustees) and under the authority of The University of the State of New York by which degrees and diplomas were awarded during that period.

## Vendor Opportunity

The DAACS Engine application development and implementation project will be a unique opportunity for qualified vendors to propose methods, development tools and techniques, development languages and integrated development environments, that meet or exceed all of the requirements listed in this RFP. Excelsior College seeks vendors who will take responsibility for development and implementation of a solution that fully supports the DAACS Engine requirements. We expect that the vendor will commit to execution of this plan *with implementation schedules and financial analysis developed as part of their response to this solicitation*.

## Program Objectives

This RFP seeks a solution that will meet the following academic study, program, and project objectives:

1. Refine the technical design and implement the DAACS Engine, with the technical capability to deliver various assessments via the Internet.
2. Construct & configure a functioning DAACS Engine system and application base package,
3. Design and implement data interfaces that will transmit updates between the DAACS Engine and the student information systems of Western Governors University (WGU) & Excelsior College.
4. To the extent practical, implement Identity Federation between the DAACS Engine and WGU / Excelsior (but not between WGU & Excelsior).
5. Design the presentation layer / user interface elements for all visual components of the application.
6. Create an import facility for the import of assessment content (i.e. prompts, questions, answers, etc.).
7. Provide platform support during the pilot.
8. Facilitate system turn-over to WGU and Excelsior I.T. staff, providing basic education as well as system and object-level application / software documentation.

## Project Overview and Objectives

The purpose of this project is to implement a solution architecture and technology stack that will provide for the assessment delivery capability as well as all of the follow-on activities involving parsing and testing the data.

In order to proceed with the DAACS Program, we require the automated capability to: 1) randomly select students to participate in the study, 2) deliver assessments to select students, 3) collect and store the results of those assessment, 4) refer the student to online resources that may improve their assessment scores and 5) provide access to the store data for academic counselors and researchers. The aforementioned combined functionality is what we refer to as the “DAACS Engine.”

The solution must be reasonably available for 99% of the time. We have not budgeted for and do not intend to have systems nor application redundancy, so the 99%-goal may need to be revisited.

## Project Phases

Project phases for the DAACS Engine include:

1. Phase 1: Requirements Validation

2. Phase 2: Application Development

3. Phase 3: Pilot Testing

4. Phase 4: Pilot Study / Go-Live

For dates, please see the following timeline:



### Phase 1: Requirements Validation

We expect that Phase 1 activities will need to move against an aggressive work schedule. However, a great deal of groundwork has been laid, visa vie the gathering and documentation of requirements.

During this phase, the vendor will be required to:

1. Review and validate the already-gathered requirements.
2. Through interactive, facilitated sessions, validate the existing requirements and gather and document any additional requirements and clarifications.
3. Research identified Excelsior College & WGU systems to reach a concise understanding of the student information systems and the information that will need to be exchanged via interfaces to the DAACS Engine.

Key deliverables for this phase will be:

1. Augmented and validated requirements documentation.
2. Specs and agreement from WGU / Excelsior I.T. personnel for the implementation of Identity Federation (with a negotiated schedule for deliverables).
3. Specs and agreement from WGU / Excelsior I.T. personnel with regard to data exchange interfaces (with a negotiated schedule for deliverables).

Functional deviations as defined in the RFP response (unmet requirements) will be discussed in greater detail and vendor developed estimates for including this functionality within the system will be negotiated.

Specific approaches will be developed during this phase related to system testing, modification development, and go-live approach. Each of the approaches will result in a formal deliverable.

Phase 1 will also create detailed program specifications for modifications, interfaces, test plans, defined use cases and an outline for tests / test scripts, and test procedures.

PHASE GATE: The documentation shall be reviewed and approved by the Program Director and an E.C. I.T. representative, prior to proceeding to the following phase.

### Phase 2: Application Development

The system will be configured in accordance with design specifications that will be refined in Phase 1. Required modifications and interfaces will be developed and unit tested by the vendor and Excelsior College as a cooperative effort.

Vendor Business Analysts document and manage the lists of work packages that are linked to the requirements as well as linked to the Deliverables in the vendor deliverables list. Any sensed deviations from the program baselines will be reported and escalated via the formal Change Management process.

The system configuration will be tested in accordance with vendor developed, Excelsior College-approved test plans, scripts, and procedures. System test results shall be approved by DAACS Program personnel prior to the system go-live.

PHASE GATE: The defined deliverables have been tested, per the vendor-produced test plan and test scripts. Test evidence and results have been delivered and reviewed by Excelsior. The system has been reviewed by the Program director and an E.C. I.T. representative, with approval from the Program Director.

### Phase 3: Pilot

The DAACS Engine will need a shake-down run. Pilot will be a limited-access period, during which, people will be solicited to come to the DAACS Engine and engage in the assessment processes. The goal of the pilot will be to validate full system functionality and provide an opportunity, over time, to refine the system. Collected data will be reviewed and revision recommendations gathered, prioritized, reviewed for approval, and incorporated into the DAACS Engine.

PHASE GATE: The defined deliverables have performed as-designed. Any approved modifications have been fully incorporated into the DAACS Engine and validated. Go no-go checklist developed. Go no-go meeting held and recommendations to go-live are accepted by the Program Director and an E.C. I.T. representative.

### Phase 4: Go-Live

For the Pilot Study, it is assumed that all functional and technical requirements have been validated. At Go-Live, “live” students will have the DAACS Program added to their orientation agendas. Students will then be true study participants.

Post go-live, the vendor will be required to provide system and application support, for a yet to be determined period of time. Once a turn-over has occurred, the expectation is that Excelsior personnel will provide platform and application support.

## Project Management & Business Analysis Expectations

The vendor will provide an implementation plan, project management structure and will interface directly with the DAACS project manager. We expect that after the delivery of the product, the Program Director may seek application enhancements through the vendor. However, Excelsior College resources will be utilized to maintain the system configuration. We expect bi-weekly project status with tangible deliverables for each reporting period. No completion credit will be granted for partial task completion.

## Regulations for Federal Grants

The DAACS Program is accountable to the U.S. Education Department for tracking and ensuring compliance with federal regulations (found within the Code of Federal Regulations [CFR] along with regulations specified in the grant award notification). Sub-contractors are accountable to Excelsior College with regard to managing the sub-contractors’ activities, in keeping with federal guidelines. A sample of the Excelsior College contract language is attached as Appendix G. Respondents should review this contract language prior to submitting an RFP response and, where necessary, seek advice from a competent expert to ensure that the vendor is willing and able to comply with any duties, therein. Any exclusion, omission or failure of Excelsior College to fully document the duties of a sub-contractor shall not be construed as an authorization to disregard any directive of relevant federal regulations.

## General Information

Excelsior College has every intention of following through with this proposal. However, nothing in this RFP should be construed as an offer to contract, but is instead an invitation to make an offer. Once an offer is accepted by Excelsior College, this RFP and all work and time schedules developed will be incorporated into the final contract. As with most planned projects, some chance exists that we will not actually accept any response.

Excelsior College reserves the sole right and discretion to make any decision related to any offer you make, including rejecting any of the offers and/or implementing just some of the components described therein, or choosing other vendors/integrators which we identify now or in the future. This document represents our needs and intentions at the time of this RFP, as based on our current estimates.

Nothing contained herein should be construed to mean that our intentions and needs may not change over time, or that additional needs or intentions may not be identified at the time we contract with vendors/integrators chosen as a result of our efforts described herein.

This RFP is specific about services requested by Excelsior College. The material in the RFP should be familiar to respondents. However, if you believe that the RFP has mistakes or requests anything impractical or infeasible, document your proposal’s variance from the RFP and indicate the reason for the variance.

# Scope of Work

## Vendor Responsibilities

Selected vendor will serve as the primary contractor and will be responsible for that firm’s products, services, and costs in their proposal. As a primary vendor, the selected vendor(s) will be responsible for the results of any subcontractor’s work products as identified in their proposal. Any additional implementation resources required through a subcontractor should be noted in the response to this RFP.

Prospective offerors need to carefully consider the following requirements when preparing their proposals:

* Offerors *must* clearly define *all* software tools planned for use in the project and must bid any tools not already licensed by Excelsior College and / or freely available via open-license form. Our standard Licensing Agreement for software packages is included in Appendix H.
* Offerors must comply with *all* mandatory functional, technical, and system requirements as identified, throughout the RFP, but specifically in the Appendices labeled Functional, Technical, and System Requirements.
* All bids may be accepted or rejected, in whole or in part, based solely upon the discretion of Excelsior College.

This RFP is specific about services requested for Excelsior College and the material in the RFP should be familiar to the respondents. However, if you believe the RFP is mistaken or requests anything impractical or infeasible, document your proposal’s variance from the RFP and indicate the reason for variance.

## Standardizing on Low-Cost / No-Cost Components

To the extent possible, the server-side architecture, services, operating systems, development tools, and computer languages should be selected from those available under no-cost licenses. Although, alternatives to no-cost will be entertained, the open license products should first be considered. Due to the nature of the programs funding and Excelsiors’ intent to publish DAACS under an open license (e.g. Creative Commons, GNU), all proposed products must not conflict with that intent. For example, most commercial software have restricted grants of license and may restrict our ability to redistribute the DAACS Engine or may incur a royalty, should that software be repackaged; Excelsior wishes to avoid the aforementioned restrictions or costs.

For all “off-the-shelf” products being proposed (those commercial off-the-shelf / COTS products being offered that do not specifically belong to the vendor), it is mandatory that the proposal list the manufacturer’s name and product name, end user license agreement(s), and include technical literature from the manufacturer that contains specifications, capabilities, capacity, and costs.

Computer code provided by the selected vendor must be commented and structured. Each discrete object must have its purpose explained with all functions and methods broken out and described. Program documentation must include full descriptions of input, output, processing / method and a listing of all files accessed and / or network connections that must be created. Vendor shall develop a namespace schema and document the hierarchy of objects, in tree-form and brief narratives for the behavior of each object.

## Administration & Management of the Implementation

The vendor will be responsible for providing a professional, timely, continuous implementation of this engagement. The vendor’s designated project manager will attend regularly scheduled status meetings. In preparation for these meetings, the vendor must provide a written report describing in detail the current status of the project and how it complies with responsibilities assigned in the implementation schedule. (A sample status report format is included in Appendix J). In addition, the vendor may be required to attend other Excelsior College meetings during the project.

Management requires that its project team be involved in the development and execution of the proposed implementation plan.

## Excelsior College’s Responsibilities

Excelsior College will provide the following:

* Analysis of current systems and business processes
* Current design of interfacing Excelsior College applications and databases that will interface with the DAACS Engine
* Subject Matter Experts (SMEs) for each of the assessment as well as content for each assessment, formatted for import into the DAACS Engine via the vendor-developed data import mechanism and per the vendor provided file format.
* Business Analyst for system configuration and testing
* Project management contact
* Steering Committee forum for issue resolution
* Monthly billing for services and fees
* Operations support
* Platform as a Service (we are targeting Amazon Cloud, as the platform provider)

## Vendor Tasks and Deliverables

The following project requirements are deemed to be the minimum mandatory activities envisioned to meet the needs of this project. For each deliverable, please provide your recommended approach for producing the deliverable. Samples or standard templates/check lists are acceptable.

|  |  |
| --- | --- |
| Deliverable Description | Deliverable Number |
| Simple Project Management Plan | DAACS-DVL-001 |
| Simple Turn-over Approach / Plan | DAACS-DVL-002 |
| Documented Interface Specifications for WGU & Excelsior Interfaces | DAACS-DVL-003 |
| Implement Interfaces to WGU & E.C. for Student Updates | DAACS-DVL-004 |
| Identity Federation w/ EGU & EC Identity Stores | DAACS-DVL-005 |
| Validation & Continued Management of Requirements | DAACS-DVL-006 |
| DAACS System Install & Configuration | DAACS-DVL-007 |
| DAACS UI Design Elements, Style Sheets, Icons Complete | DAACS-DVL-008 |
| Implement Student DAACS UI | DAACS-DVL-009 |
| Implement Writing Scorer UI | DAACS-DVL-010 |
| Implement QA Testing UI | DAACS-DVL-011 |
| DAACS Installation Bundle / Installer | DAACS-DVL-012 |
| Software Test Plan | DAACS-DVL-013 |
| Software Test Scripts | DAACS-DVL-014 |
| Software Test Report | DAACS-DVL-015 |
| System Administrator Training Documentation | DAACS-DVL-016 |
| System Turn-over | DAACS-DVL-017 |
| One-year Software Warranty | DAACS-DVL-018 |
| Bi-Weekly Status Reports | DAACS-DVL-019 |
| System Support – During Pilot | DAACS-DVL-020 |
| System Support – Post Go-Live | DAACS-DVL-022 |

# Instructions to Respondents

## RFP Schedule

Listed below is the schedule of events and activities that are part of this selection process.

| Date | Activity |
| --- | --- |
| 30-Mar-16 | Release of RFP |
| 06-Apr-16 | Vendor Meeting (Online) |
| 16-Apr-16 | Last Date to Submit Questions |
| 23-Apr-16 | Proposal Due to Excelsior College |
| 30-Apr-16 | RFP Evaluations & Scoring Complete |
| 03-May-16 | Program Director Review & Decision |
| 05-May-16 | Vendor Notification(s) of Interest to Negotiate |
| 12-May-16 | Negotiations Completed, Contract Award & Execution |
| 12-May-16 | Begin Project Execution |

## RFP Submission Deadline

One (1) electronic copy of your proposal must be transmitted to Excelsior College by 5:00 p.m. EST, Friday, 22APR16, to be considered. Any proposals received after the above date and time will be returned unopened and will not be considered.

The vendor must notify Marc Verdi, by phone at (518) 608-8444, that proposal packages have been emailed and / or published to shared internet resource, prior to the cutoff. Excelsior College will not consider proposals that were lost in the mail or “delayed” by “forces beyond the vendor’s control”. It is the responsibility of the vendor to *ensure* the proposals arrive on time at the designated location.

## RFP Clarification Procedure

If you have any questions, you must submit them in written format to the attention of Marc Verdi at:

|  |  |  |
| --- | --- | --- |
| Excelsior College |  | Email to: |
| 7 Columbia Circle | OR | Mverdi@Excelsior.edu |
| Albany, NY 12203-5159 |  |

Acknowledgement of receipt of each question received via electronic mail will be sent to the vendor within 24 hours. If you have not received notification within 24 hours, please re-send the question.

Answers to written questions received by noon, Friday 15APR16, will be documented and distributed to all potential vendors. ***Excelsior College will entertain no further questions after the submission deadline.***

## Confidentiality

This document should be deemed confidential and used for the sole purpose of responding to Excelsior College’s Request for Proposal. Please *confirm this in the Executive Summary* of your response.

## Proposal Ownership

The contents of all proposals we receive will become the property of Excelsior College. We retain the right to use any ideas presented in any proposal as we see fit without incurring any obligation or any liability for costs incurred by the vendor and/or integrator (except as regards the use of proprietary hardware or software products). Please *confirm this in the Executive Summary* of your response.

## Evaluation Criteria

Evaluation of responses to this RFP will be based on the following factors (listed in order of importance). A detailed explanation of the evaluation criteria and specific evaluation procedures, including point values and weighted percentages, is included in Section 5.0.

* Special consideration will be given to small businesses, minority-owned firms, and women's business enterprises.
* Special consideration will also be given to firms that can illustrate a commitment to conserving natural resources and protecting the environment.
* Qualifications and related experience of the vendor’s assigned team and any of their subcontractors, with the implementation and installation of the proposed software.
* Ability to meet the functional and technical requirements defined in this RFP.
* Demonstrated understanding of Excelsior College’s overall request and respondent’s ability to offer a successful solution.
* Availability of the vendor’s project team to commence work immediately upon issuance of a signed contract and full commitment to Excelsior College’s project relative to vendor’s other projects.
* Availability of the vendor’s project team to hold face-to-face meetings with the DAACS PM and Project Director, in Albany, NY, without incurring travel expenses in excess of $200 per person per day.
* Quality and completeness of the proposal as it relates to all sections of this RFP.
* Price and adequacy of the cost proposal. Lowest-price will not be the contract award criteria. Although, cost will be compared to the scope and quality of the proposed methods and materials applied to complete the deliverables.

## Proposal Contents and Format

In order to facilitate the timely evaluation of proposals, a standard format for submission has been developed and is documented below. All vendors are required to format their proposals consistent with the guidelines described herein. All offerors are required to provide a digital copy in Microsoft Word 2013 or greater. Spreadsheets must be completed in Microsoft Excel 2013 or greater.

Each proposal **must** contain all of the following articles / artifacts:

* Transmittal Letter
* Executive Summary
* Business Response
* Solution Response
* Cost/Pricing Response

Any information that the vendor feels is necessary beyond what Excelsior College has requested should be included in an appendix in the appropriate section of your proposal response.

### Transmittal Letter

Submit a Transmittal Letter on vendor’s business letterhead, signed by a responsible official who is authorized by your company to obligate or contract, and scanned to PDF or TIFF. The Transmittal Letter must summarize the offeror’s ability to supply the required products and services that meet the requirements defined within this RFP.

The Transmittal Letter must also include:

* A statement indicating that the offeror is a corporation or other legal entity.
* All proposed subcontractors must be identified and a statement included indicating the exact amount of work to be provided by the vendor and each subcontractor, presented as a percent of the total effort (measured in staff hours or products provided).
* A statement identifying those individuals involved in the preparation of the proposal response.
* The offeror must clearly distinguish and provide the name, title, phone number, and email address of the person(s) (primary and secondary) who shall serve as Excelsior College’s contact during the period from proposal receipt through proposal evaluation.
* A statement that the offeror has sole and complete responsibility for the completion of all proposed activities and associated deliverables as defined within this RFP, except for those items specifically defined as Excelsior College’s responsibility.
* A statement indicating the offeror’s willingness to commit named individuals in the bid. They will be assigned to the project for the duration of the project unless Excelsior College requests differently.
* A statement that indicates that **ALL** terms and conditions provided in the sample contract are agreed to, so that in the event of contract award to the bidder, the bidder agrees to be bound by the terms and conditions in the attached documents. If the bidder does **NOT** agree to the terms and conditions in the attached documents, it is required that the bidder explicitly state such in the Transmittal Letter and provide requested alternative contract language that the bidder would like to be considered before contract award. Any alternative contract language not included in the Transmittal Letter will not be considered for discussion at a later date, and the successful bidder automatically agrees to sign any of the documents as attached hereto. In addition, Excelsior College reserves the option to attach all or portions of the bidder’s Transmittal Letter to the final contract that is awarded.
* A statement of acceptance that the offeror has the ability to provide the products and services within the time constraints of a jointly developed implementation schedule.
* This letter should certify the accuracy of all information contained in your proposal.
* This letter should certify that the bid will remain in effect for at least 90 days from date of submission.

### Executive Summary

Submit an executive summary of your proposed solution, covering the main features and benefits, in non-technical terms. The Executive Summary should condense and highlight the contents of the Solution Response in such a way as to provide the Evaluation Team and Excelsior College leaders with a broad understanding of the entire proposal. Please also confirm that the contents of this request will remain confidential and that the proposal will belong to Excelsior College.

### Business Response

This section should contain information about your company and your project management methodologies. If multiple companies or subcontractors are involved, provide information about each.

Information presented in the Business Response should include responses to Section 4.2. Project Management Requirements and concise, accurate answers to the questions included in Appendix A: Vendor Business Response Questionnaire.

#### References

Identify within the Business Response section at least 3 reference customers, with a size and scope that matches or exceed the scope of this RFP. Include contact names and phone numbers for each reference. You may list engagements that are substantially (6 months or longer) in progress.

Please inform the references of our intention to call, and ask them to be prepared to answer the questions identified in Appendix B: Reference Questions.

### Solution Response

Please complete all questions and address all items defined in Appendix C: Functional Requirements and Appendix D: Technical Requirements.

#### Implementation Schedule

The vendor is required to develop a high-level implementation and staffing plan for each of the phases described in Section 1.11. It is understood that a more detailed masterwork plan will be developed jointly upon initiation of the project. However, you should include an implementation plan and schedule with your proposal response with enough detail to allow Excelsior College to evaluate how you intend to meet our time constraints with your solution approach. The ability to meet or beat the tentative schedule outlined in Section 1.11. will be one of the key factors considered in this selection process. The staffing plan must detail Excelsior College personnel and vendor personnel (by position type) that will be required to implement the software.

Your proposal must include key deliverables referenced in Section 2.4. by project phase. Document any contingency plans you wish to be incorporated into the tentative schedule.

#### Project Resources

The following organization chart depicts the tentative structure for the implementation project.



Bullet points resumes.

We require the vendor’s project manager and other identified vendor staff have relevant experience. Further, we require that vendor’s staff be qualified to install, use, and provide skills transfer to Excelsior College personnel for all software tools that are part of the vendor’s solution.

The project manager and other identified vendor staff must be able to travel on-site to Excelsior College, from time to time. However, the bulk for the work may be accomplished off-site.

**Note:** We require that the vendor’s personnel not be substantially reassigned once they have been assigned to our account unless it is agreed to by both parties. We will define the term “substantial” as a any of the following, alone or in combination, during the term of the engagement: 1) substitution of personnel, 2) a reduction of an assigned persons committed levels of effort, or 3) dilution of a persons committed levels of effort by allocation of that person to other customers or 4) over-allocation of personnel within the DAACS Project.

### Cost/Pricing Response

The Cost/Pricing Response should specifically address all of the tasks and deliverables outlined in Section 3.0 or elsewhere in this RFP. Please complete all questions and cost sections included in Appendix F: System Cost Summary in the format requested. If the Cost/Pricing Response is returned in a format other than requested here, the vendor will be asked to re-submit costs.

If the vendor chooses not to provide Excelsior College with all of the implementation resources required, then they are requested to provide a ballpark cost of implementation of the software based on a client of similar size and complexity. Please include the costs of personnel as separate items.

Incomplete proposals **WILL NOT** be considered. An incomplete bid will be disqualified from consideration. Excelsior College will consider this to be the best and final offer of system costs, therefore, please be as accurate and complete as possible. Excelsior College expects the Cost/Pricing Response to be mapped to specific payments tied to milestones/deliverables, with an allowance for progress payments. Detailed costs broken out as indicated in Appendix F.

All travel expenses will be the responsibility of the vendor. However, Excelsior College requires your estimated travel costs be identified and included in the bid. Please plan on a minimum of 4 trips to Albany for the PM and other personnel, as required, with additional trips planned and prior-approved, as needed.

When pricing software tool sets, the vendor should present the cost of purchasing these products.

### Contract Language Requirements

Included in Appendix G are provisions normally included in contractual agreements. Excelsior reserves the right to add or revise terms prior to any offer to contract with a vendor. A Schedule will be negotiated with payments attached to deliverables, once the vendor has bid their deliverables back to Excelsior College.

### Award of Contract

Excelsior College reserves the right and privilege to accept or reject, in whole or in part, any or all proposals, and to award a contract to other than the lowest-cost proposal. We also reserve the right to negotiate and engage more than one qualified supplier at the same time, should such action be in Excelsior College’s best interest.

# Application Requirements

## High-Level Entity Relationship Diagram (ERD)



The high-level ERD defines the actors whom interact with the system and the typical interactions. Please provide a detailed write up of your proposed solution and address each of the detailed requirements in Appendix D: Functional, Technical, and System Requirements.

Adjunct information will also be published via a shared internet resource. This information will expand on the requirements (Appendix D) via Visio documents, workflow depictions, and basic user stories. The objective of this information is to communicate and descried the desired product, visually as well as in narrative format.

## Project Management Requirements

Excelsior College strives to implement best-practices based on PMBOK methodologies. We seek a vendor that can demonstrate a similar commitment to managing through the project lifecycle, during the DAACS Project.

### Project Control

It is the intent that project management and requirements management will be a shared responsibility during this project with the vendor providing project management and tracking responsibility for all vendor resources and deliverables.

The project schedule will be tracked in milestones not greater than 10-day increments with tangible deliverables for each task. A formal Work Breakdown Structure will be proposed, outlining the entire build and implementation. Vendors may choose to use our Vendor Deliverables list, as a source for the initial WBS.

Bi-weekly project status meetings will be held at the Excelsior College site. Scheduling of these meetings will be the responsibility of the DAACS Project Manager and the vendor counterpart. The bi-weekly meeting will have a written status update, against which each status meeting will work.

### Project Plan

Selected vendors will be required to provide a documented approach and plan. The outline for the plan may follow the Vendor Deliverables. Excelsior seeks to control costs, so we do not expect bulky plans; simple-but-reasonable documentation of the general approach and estimates for deliverables will be sufficient.

### Risks, Assumptions, Issues, Dependencies, and Change Management

The DAACS PM is managing a RAIDC Log (Risks, Assumptions, Issues, Dependencies, Changes). The vendors analyst / PM will collaborate on the contents of the RAIDC Log.

Any functionality that is not listed in the Functional, Technical and Systems specifications would be considered a change in specification and scope. All changes are subject to change management procedures, and it is expected that the vendor will adhere to the change management procedures, already established by the DAACS PM. Any impact on price or schedule must be communicated DAACS PM. The DAACS PM and their vendor counterpart will analyze the impact of the change, document impacts, and submit a written Change Request for review by the Program Director; this must occur prior to any action take to implement such changes, and agreement reached by both parties before proceeding with the change.

### Facilities

Vendor will undertake the principal responsibilities for this work from its office.

# Selection Criteria

## Proposal Evaluation Criteria

Excelsior College will conduct a comprehensive, fair and impartial evaluation in accordance with the items listed below for all valid proposals received in response to the RFP.

Each of the seven evaluation categories will be evaluated and scored with either a pass/fail rating or a calculated point value. Two of the seven categories are assigned a score of either “pass” or “fail.” The other five categories are assigned weighted values for use in calculation of the overall proposal score.

## Evaluation Criteria Categories

The evaluation criteria categories are described below, together with a brief explanation of the basis for evaluation of that category. The percentage of the total point score associated with each category is also indicated.

### Category Rating/Percentage of Importance

| Category | Percentage of Importance |
| --- | --- |
| Format of Proposal | Pass/Fail |
| Adherence to Requirements (or clearly proposed alternatives) | Pass/Fail |
| Special consideration for: small businesses, minority-owned firms, women's business enterprises as well as firms that can illustrate a commitment to conserving natural resources and protecting the environment. | 5 Percent |
| Ability to Satisfy Functional and Technical Requirements | 20 percent |
| Quality of Proposed Solution | 20 percent |
| Quality of Implementation Approach | 15 percent |
| Quality of Proposed Project Management | 10 percent |
| Price | 15 percent |
| Overall Management & Judgement | 15 percent |

### Pass/Fail Categories

With respect to the format of proposal and adherence to requirements, evaluators will score using a PASS/FAIL rating. Should a proposal receive a FAIL rating for any evaluation items in either category, Excelsior College may at its own discretion consider the proposal to be non-responsive and may elect to eliminate said non-responsive proposal from further consideration of evaluation.

### Point Value Categories

Each category listed above will be assigned a point value equal to its percentage, multiplied by 10,000. Each sub-category will be assigned a portion of its category’s points. The sum of the sub-categories points will equal the category’s points. The Evaluation Team will calculate a point score for each sub-category based on the degree to which the proposal satisfies that requirement of the RFP. The sub-category scores will be summed to obtain the category score. The proposal evaluation score will be the sum of the category scores.

## Evaluation Procedures for Requirements

### Format of Proposal

The Evaluation Team will review and determine whether each proposal has complied with minimum requirements established in the RFP as to form, format and content.

### Adherence to Requirements

The Evaluation Team will review and determine whether each proposal has complied with the specifications and requirements established in the RFP.

### Special Considerations for Federal Grant Sub-Contractors

|  |  |
| --- | --- |
| Sub-Category | Max Points |
| 1. Consideration for small business, minority-owned, and women’s business enterprises | 250 |
| 1. Consideration for firms that illustrate a commitment to conserving natural resources and protecting the environment | 250 |
| Category (.05 x 10000) | 500 |

### Ability to Satisfy Functional and Technical Requirements

|  |  |
| --- | --- |
| Sub-Category | Max Points |
| 1. Ability to Meet Functional Requirements | 500 |
| 1. Ability to Meet Technical Requirements | 750 |
| 1. Ability to Meet System Requirements | 750 |
| Category (.20 x 10000) | 2000 |

### Quality of Proposed Solution

|  |  |
| --- | --- |
| Sub-Category | Max Points |
| 1. Quality of Analysis and Design | 700 |
| 1. Quality of Proposed Implementation Team | 600 |
| 1. Quality of Product/Solution Recommendation | 700 |
| Category (.20 x 10000) | 2000 |

### 

### Quality of Implementation Approach

|  |  |
| --- | --- |
| Sub-Category | Max Points |
| 1. Quality of Master Work Schedule | 750 |
| 1. Availability and Commitment of Project Team | 750 |
| Category (.15 x 10000) | 1500 |

### 

### Quality of Proposed Project Management

|  |  |
| --- | --- |
| Sub-Category | Max Points |
| 1. Quality of Proposed Project Management Methods | 0500 |
| 1. Quality of Proposed Project Control | 0500 |
| Category (.10 x 10000) | 1000 |

### 

### Price / Costing

|  |  |
| --- | --- |
| Sub-Category | Max Points |
| 1. Pricing is Market Appropriate & Within E.C. Budget 2. The Resource & Deliverable Estimation Tables are Complete (See Appendix F) | 500  1000 |
| Category (.15 x 10000) | 1500 |

### Overall Management and Judgment

|  |  |
| --- | --- |
| Sub-Category | Max Points |
| 1. Credibility and References | 750 |
| 1. Corporate Background and Experience | 750 |
| Category (.15 x 10000) | 1500 |

### 

1. Vendor Business Response Questionnaire

This appendix presents questions related to the organization and management plans of the vendor, including research and development, strategic and partnership opportunities, system and implementation support. Please answer each question completely, concisely, and accurately. Single word answers are acceptable if qualification or explanation is not required. Please reiterate the questions with the question number, in the order they are presented, followed immediately by the response. Double space between the question and the answer. Technical or promotional materials may be referenced as attachments or appendices but are not to be used in lieu of answering the question. Do not include these materials in the body of the response.

General Vendor Information

A. How long has your company been in the business?

B. What percentage of your organization’s business involves application development?

C. Summarize your organization’s financial performance over the last 3 years.

D. Please identify the total number of employees in your organization, including the number of employees allocated to application development and support. Please break out numbers between development and support.

Strategic and Partnership Information

A. Please provide a description of strategic alliances with other vendors/integrators who may be used as resources.

B. Describe any strategic, partnership, or otherwise unique relationships you have with other clients that you would propose with Excelsior College.

C. Please describe any established user groups associated with your organization or with which your organization affiliates.

D. Describe your organization’s vision for providing web-based applications, technologies, or value-added services.

System Support

A. Are you willing to provide system and application support, until the turn-over is complete, post go-live?

Implementation Approach

A. How soon after contract signing can implementation begin?

B. Describe your methodology for approaching project. What is your preferred and recommend application development methodology?

1. Reference Questions

| Question | Response Type |
| --- | --- |
| Was your experience with the vendor positive? | Scale 1 to 5 |
| Would you hire the vendor again? | Yes/No |
| What was your budget for the implementation of the software? | Dollar Amount |
| What was your vendor’s final project estimate? | Dollar Amount |
| What was the final cost of implementation? Explain variance. | Dollar Amount |
| Did you rely on vendor personnel to configure and implement the software? If no, why not? | Yes/No |
| Describe and rank the training provided. | Scale 1 to 5 |
| Describe and rank the documentation. | Scale 1 to 5 |
| Describe and rank support and maintenance. | Scale 1 to 5 |
| Describe and rank Quality Control (i.e., methods of testing, production migration, and version control). | Scale 1 to 5 |
| Describe and rank support responsiveness. | Scale 1 to 5 |
| Describe and rank Methodology/Project Management. | Scale 1 to 5 |
| Describe and rank vendor Accessibility/Feedback Process during development. | Scale 1 to 5 |
| Did the vendor meet deadlines? | Yes/No |
| What was your schedule? | Months |
| Can you modify the system without the vendor’s assistance? | Yes/No |
| What was the experience of the personnel assigned to your account? | Scale 1 to 5 |
| What would you have done differently? | Comments |
| What were the major strengths of the chosen vendor? | Bullets |
| What were the major weaknesses of the chosen vendor? | Bullets |
| How many people were involved in the project? | Numeric |

1. Functional Requirements

**Instructions.** In order to simplify the process of compiling your responses, please indicate in appropriate section of your Solution Response, which requirement(s) is addressed (using the Requirement ID).

| Functional Req. ID | Title | Description |
| --- | --- | --- |
| EC-FR-001 | Data Retention | System data must be maintained for 10-years, at which time the data may be purged or archived. |
| EC-FR-002 | Graphical Representation of Student Progress Per-Assessment | Via the Student Landing Page, graphical elements representing the students’ progress will be included, per-assessment. We don't know what types of graphics or how we will apply them. We do know that they will be static depictions of the most current state of the assessment (see Assessment States requirement for a list of states) |
| EC-FR-003 | Computer Adaptive Testing Capability | The DAACS Engine must have computer adaptive testing capability. This capability will not be used for all assessments. |
| EC-FR-004 | Computer Adaptive Testing, But Not for All Assessments | Computer adaptive testing requirements for the following assessments: Reading (may), College Skills (will not), Math (will), Writing (will not) |
| EC-FR-005 | Test Takers May Not Complete an Assessment in a Single Sitting | Test takers may complete the assessment over a period of days; making some progress and then returning, at a later time to make more progress. System shall accommodate students that make incremental progress or students that might lose connectivity, mid-assessment. |
| EC-FR-006 | Assessment Design - Question Types | Most of the questions can be categorized as multiple-choice (even Likert-scale questions). Some questions may be Yes/No. |
| EC-FR-007 | Time To Complete - Assessment & Item Level | The assessments shall not be time-constrained. However, the system shall measure the time-to-complete each item, and each assessment, per student, and store that data for retrieval. |
| EC-FR-008 | Seamless user authentication between DAACS Instances and college systems | The DAACS instances will share the same Identity Store as the college information systems of WGU and Excelsior College, so that the user can be uniquely identified by the DAACS Engine and access to DAACS be controlled. The hand-off between the students "orientation page" and the DAACS-landing-page shall be seamless, requiring no additional login activities from the users (to the extent practical). |
| EC-FR-009 | Student population segmentation | Students will be segmented into two populations; the treatment and control groups. The treatment group will be subjected to the DAACS Assessment and interventions. The control students will not be subject to any DAACS-related activities. The Excelsior and WGU systems will randomly select students, during the students’ enrollment activities, such that the DAACS activities will be added to the treatment groups orientation curriculum. |
| EC-FR-010 | Return Notifications to College Systems Regarding Student Completions | The DAACS will be a mandatory part of certain student’s orientation curriculum. Therefore, the system shall have the capability to communicate a student’s completion of the 4 assessments, to the college student information systems / learning management systems. |
| EC-FR-011 | System Security, Data Integrity & System Stability | Only valid users shall access the DAACS system. Care must be taken to secure data in transit and data at rest. Technical principles will be applied to ensure system stability and data integrity. Student data must be protected. |
| EC-FR-012 | Number of Assessments May Vary | System shall be able to adapt to a changing number of assessments, without the need for changes in HTML pages, code, or other such "back-end" methods. |
| EC-FR-013 | Number of Assessment Items Will Vary | The number of items / questions to which the students are subjected may be varied, from time to time. This is to adjust for factors, such as the average time duration required to complete an assessment. The research team will monitor the pool of student performance metrics, and adjust parameters in the testing engine, as required. |
| EC-FR-014 | Items / Questions Will Be Retired | Periodically, the research team will review and retire Items / Questions that are not effective in accurately providing student competency information. |
| EC-FR-015 | Assessment Feedback Pages: Sorting & Contents | Each assessment shall have an assessment feedback page. Once an assessment is completed the page will be populated with the following elements, in order: the top-most page element will contain an explanation of the Assessment (what is this and why is it important to me, the student), followed by a summary performance element (summarizing performance across all of the Domains / Categories), for each Domain / Category, a description of the Domain / Category and the student score that Domain / Category. At this level, the link to the supplements will be offered. Finally, the student may click through or expand a tree-element to reveal each item from that student’s assessment, with accompanying item-specific information. |
| EC-FR-016 | Maintain the historical state of a students’ assessment and assessment feedback | The assessment content, rubrics, feedback (almost any aspect of the DAACS Engine content) should be expected to change. The content may change on any dimension. However, the system shall be able to reproduce the state of the assessment(s), associated scoring device (rubric), feedback, etc., that was presented to the student at the time that the student completed that assessment. Think "snapshot reproduction". Content will be retired (e.g. marked inactive) and retained, when replaced by a new active item. |
| EC-FR-017 | System must be packaged and freely licensed so that Excelsior may publish the DAACS Engine for other institutions to use, without license costs. | The DAACS Engine will be published under an open license for higher-ed institutions to use, freely and without costs. Excelsior, at its sole discretion, will chose an appropriate licensing tool (e.g. GNU or Creative Commons), at the appropriate time. Care must be taken not to expose WGU or Excelsior proprietary information during this phase. |
| EC-FR-018 | Student Feedback | The system will present summary, domain and item-level feedback, at the time the student concludes the assessment. This "breakdown information" will be presented on a discrete page (per assessment). |
| EC-FR-019 | Immediate Feedback to the Student | Systems will automatically score the students assessment performance and immediately provide feedback, upon completion of each assessment. |
| EC-FR-020 | Student Feedback Content will Change | System must allow for "student feedback" content to change. System must maintain the all "student feedback" content for historical purposes, such that a student’s feedback, at a particular date, can be reproduced. Think "snapshot reproduction." |
| EC-FR-021 | Graphical Representation of Student Performance, Per-Domain/Category, Per Completed Assessment | We will provide visual feedback (static) depicting the students overall performance, per assessment, as well as student performance within a domain/category. |
| EC-FR-022 | Badge rewards for students assessment performance. | System must reward the students’ performance with badges, to encourage participation. Think: Bronze, Silver, Gold concept for awarding / rewarding the student for assessment-level performance. |
| EC-FR-023 | Rubric: Essentially a Table for Scoring Student Assessment Performance | Rubric is a table, each cell of the table will link to a unique student feedback item. For all assessments, the system shall score the students’ performance and refer to the assessment-specific rubric to compile the student feedback for reading comprehension. |
| EC-FR-024 | Rubric - Definition | Each assessment has one and only one active rubric, against which the student will be scored. The rubric content may change and all prior content must be maintained. |
| EC-FR-025 | Rubric - Design | All rubrics will have a three-step student performance scale (low, medium, high) on one axis. Along the other axis, the Domains / Categories we are assessing will be enumerated. Each X,Y coordinate on the Rubric will be linked to a pre-developed Student Feedback Item. |
| EC-FR-026 | Rubric - Number of Categories / Domains | Rubrics shall have multiple Categories / Domains, to which Items are mapped. The number of Categories / Domains will be established by the research team and may be altered by the research team, at any point in the study. Aspects of the Rubric may be retired and replaced, but all history must be preserved. |
| EC-FR-027 | Rubric - Scoring Scale | Rubrics are being homogenized to a 3-point scale, low, medium, high. Expect that this scale may be altered, by future users, to include additional steps in the scale. |
| EC-FR-028 | Reading Assessment Supplements | As part of the feedback for the Reading section, links will refer student to specific areas within the Excelsior College Reading section of the Online Reading and Writing Lab. The Reading Lab is a deliverable for the DAACS Program and must be completed before DAACS-Pilot. |
| EC-FR-029 | Writing Assessment - Has No Items | There are no questions / items for the Writing Assessment. The student submits a writing sample, based upon a system-provided essay / prompt. |
| EC-FR-030 | Writing Assessment - The Writing Prompt | The system will serve a single writing prompt, within the Writing Assessment delivery. This writing prompt may change, but we need to maintain writing-prompt-history. |
| EC-FR-031 | Writing Assessment - Accept Student Writing Sample | Writing assessment will present the user with a text box, to accept the students writing sample. The text box will not include rich formatting nor other extended capabilities. |
| EC-FR-032 | Writing Assessment - Manual Scoring | For a period of time, the writing samples will be human-graded. Once we have gathered approximately 750 writing samples with human-generated scores, we will train the automated grader. |
| EC-FR-033 | Writing Assessment - Automated Scoring | The system shall include a module / capability to automatically score the student writing samples (produced in the Writing Assessment context). |
| EC-FR-034 | Writing Assessment - Switching from Manual to Automated Scoring | Once the automated grader has been trained and validated, we will cut-over to automated scoring, which will use the same rubric and student feedback content, as during the period of manual scoring. |
| EC-FR-035 | Writing Assessment - Supplements | Writing supplement are already available and the DAACS engine shall link to those resources in the Excelsior College Online Writing Lab (aka the OWL). |
| EC-FR-036 | Progress Bar in the Context of Taking the Assessment | If Concerto supports the functionality, the system may present the student with an assessment-level progress bar, while they are engaged in taking the assessment. |
| EC-FR-037 | Usability and screen-scape | The students’ browser screen-scape must be capable of rendering the assessment and items without causing excess scrolling. This may eliminate some delivery methods (i.e. phones, small smart devices). |
| EC-FR-038 | Design of the Assessment User Interface | At "assessment taking time", the assessment style will include high-contrast, zero-clutter design criteria, within which the assessment Item(s) is presented. |
| EC-FR-039 | Accessibility | To the extent technically possible and feasible, all webpages shall be ADA-compliant and usable for screen-readers (508 Compliance) the delivery method and content will need to be determined, prior to going to market. |
| EC-FR-040 | Most Mobile Access Devices are Out of Scope | Do to the unique constraints of the assessment presentation requirements, we will not consider mobile application development elements, as part of the design criteria. However, software design principles should be object-oriented, such that there is a clear separation between object-date and object-presentation layers, to enable "mobile" (should this requirement ever change). |
| EC-FR-041 | Math Assessment - Supplements | Math supplements shall be links to the Kahn Academy: https://www.khanacademy.org/ |
| EC-FR-042 | Math Assessment - Items | Math assessment items are multiple-choice. There is only one correct answer. |
| EC-FR-043 | College Skills Supplements | College Skills assessment measures non-academic aspects of student success (e.g. motivation, grit, meta-cognition, planning and reviewing skills). |
| EC-FR-044 | College Skills Exam is Static | The College Skills assessment is static; the questions, the order of the questions, everything will always be the same. |

1. Technical Requirements

**Instructions.** In order to simplify the process of compiling your responses, please indicate in appropriate section of your Solution Response, which requirement(s) is addressed (using the Requirement ID).

| Technical Req. ID | Title | Description |
| --- | --- | --- |
| EC-TR-001 | Ensure the Students browser has sufficient screen-scape to accommodate the Reading Assessment Passages. | We need to test the students’ browser via code at the time they access the MyDAACS landing page and define acceptable screen dimensions. (especially for screen width for the Reading Assessment). Because of the format for the Reading Assessment Passages, we have almost no discretion as to how we render the passage with associated line numbers. |
| EC-TR-002 | Writing Sample Length Limit | Limit the writing sample to a length of 20,000 characters or 220 lines: the equivalent of 4 written pages in 10 pitch font. |
| EC-TR-003 | Writing Sample input box | No rich-text capability. Expect that a student will probably author the sample in some other application and copy-paste the sample into the DAACS text box. Text Box should be dynamically sizable. Text Box should be presented in a large format, somewhat like an 8.5 x 11 sheet of paper (to scale, of course). |
| EC-TR-004 | Immediate Feedback | Feedback will be provided immediately upon completion of each module of the DAACS (not each question). |
| EC-TR-005 | Immediate Feedback 2 | Feedback will always be generated dynamically, based upon the stored values for the students’ performance on an assessment, and the stored pre-written feedback content (in the Explanation columns of the various database tables). |
| EC-TR-006 | Data Retention Policy | Maintained for 10-years and then archived. Federal law requires that protected student information be deleted, when it is no longer needed. This retention policy and period will be revised to ensure compliance with E.C. standards. We need the ability to archive or expunge selected student records and related database entries (i.e. expunge one or many, by feeding a stored proc one-or-more UUID's). |
| EC-TR-007 | Data Integrity / Back-ups | We need to develop a back-up plan that takes into account the unique nature of stateful-data in the RDBMS as well as flat files, on the DAACS Engine. DAACS will need the ability to return to a previous state (say one-day prior) if the DB or file system becomes corrupted. |
| EC-TR-008 | System Health Monitoring | All of the major sub-systems need to be monitored for health and someone needs to be available to intervene, when the system or sub-systems have an availability incident. |
| EC-TR-009 | Generate Feedback On-the-Fly Every Time | We need to be able to generate the feedback, each and every time the student returns to the DAACS. Since the feedback narratives, content, and links to supplements WILL change, we will need to generate it every time. |
| EC-TR-010 | Handling Ongoing Changes to Feedback | Throughout the duration of the DAACS study, we will modify the feedback verbiage and / or links to supplements. No information should be deleted. Rather, items should be deactivated and replaced by an active item. |
| EC-TR-011 | Graphical Representation of Student Progress Per-Assessment | Develop icons for the three performance levels. Store them as flat files on the web server. Ensure that the UI-element-objects hold the relative link information as a property that can be consumed at the presentation-layer. |
| EC-TR-012 | Rubric Scoring Scale Design for All Assessment | 3-point scale, low, medium, high |
| EC-TR-013 | College Skills Answers | Likert (scale of 1-6), aka multiple choice |
| EC-TR-014 | Asynchronous Assessment Completion | We are designing under the assumption that Concerto has the capability of returning a student to their "prior state within the course of completing and assessment." The use case is the student navigates away from the assessment or loses their connection, then returns to complete an assessment, at some later time. |
| EC-TR-015 | Digital rubric | A databased representation of the rubric table needs to be stored, with the ability to retire and / or replace any dimension of the rubric, while maintaining all information for historical reasons. |
| EC-TR-016 | Adaptive Test | Will use the C.A.T. capability to vary the difficulty of the questions, based upon the students’ performance. |
| EC-TR-017 | Legibility of reading passage | We will need to test the screen width to ensure that the student can see all of the reading passage. The passage has fixed rendering, with line numbers along the left side. If the students screen configuration (whether mobile or PC) isn't sufficient, this may cause the student to scroll. We may need to advise the student to scroll left-and-write (in order for the student to see the entire passage). |
| EC-TR-018 | Reading passage must not word wrap | Because of the passage line numbers (on left of passage) we have to eliminate the ability of the browser to word wrap the passage. |
| EC-TR-019 | Presents a writing prompt. | The system will serve a single writing prompt. |
| EC-TR-020 | Manual scoring for writing samples | The system needs to provide a web-based capability to allow multiple people to surf into the DAACS Engine, select a writing sample, review the writing sample content, then select the appropriate performance levels, on the Writing Rubric, then save that scored sample. |
| EC-TR-021 | Automated scoring for writing samples | Once the automated grader has been trained and validated, we will cut-over to automated scoring, which will use the same rubric and student feedback content, as during the period of manual scoring. |
| EC-TR-022 | Rendering Formulae | Using the technology stack (MathJax) and pull the Math Item "formulae" as a mark-up file, during Assessment Time. |
| EC-TR-023 | Federation for access control and role-based security | Installation and configuration of Unix subsystems to enable the DAACS Engine to exchange security information between the DAACS Engine and the college identity stores (IdS) |
| EC-TR-024 | Prefetching Credentials and Attributes | Prefetch credentials from the college/ university Identity Stores via Federation. |
| EC-TR-025 | Non-prefetched User will require a triggered fetch | Enable the capability to fetch student credentials, if a student credentials are not already resident on the DAACS instance. |
| EC-TR-026 | Role based security and Presentation-layer behavior | We need defined roles that match the minimum set of users / primary actors. "Writing Sample Scorers" will get a view, students will get another view, QA Testers will need to see extended information within the UI, etc. etc. |
| EC-TR-027 | Federation between both DAACS Instances and Excelsior IdS | The researchers and admins credentials will be managed in EC's Active Directory. |
| EC-TR-028 | Federation between WGU and the WGU-Specific DAACS instance | WGU will manage their student credentials. |
| EC-TR-029 | Writing Sample Storage | Flat file storage for the sample with relational data stored in the RDBMS. |
| EC-TR-030 | Writing Sample Length Limit to Avoid Denial of Service | Limit the length to something realistic, to limit the possibility of malfeasance. |
| EC-TR-031 | Student Feedback Sorting Order | The feedback for the student feedback must be sortable, so that the students best Domains / Categories can be presented first, with the poorest performance Domain / Category presented last. |
| EC-TR-032 | Likert-Scales Will Vary in Length | Likert's-scale questions will have varying number of possible Reponses per question. (i.e. one scale may have 5 steps, another may have 6-steps) |
| EC-TR-033 | DAACS Engine implements UUID V4, unless another version of UUID is required | Version 4 UUID (i.e. random numbers) will be used, unless there is a compelling reason to adopt another UUID format. |
| EC-TR-034 | Managing the lists of DAACS-Student Participants and their progress in completing the Assessments | Each participating university will manage a list of students that have been referred to the DAACS Program. |
| EC-TR-035 | Facility for the import of assessment contents | There will need to be sufficient scripts built to allow for Non-DBA (but technically oriented) personnel to initially load the content for Assessments (and child objects), Rubrics (and child objects). |
| EC-TR-036 | Stored Procs for modifying objects in the database | Since the DB-design has strong referential integrity, we will need a set of stored proc's that handle the inserts of new rows and updates to existing rows / elements. The SP's need to provide sufficient error messaging so that a failed action (e.g. insert, update) can lead a technical admin (non-DBA) to troubleshoot the reason for the failure and take corrective action. Eventually, someone might build a UI to encapsulate the functions of the SP's; the SP's need to have role-based perm's that limit their usage to appropriate roles (DAACSDeveloper or DAACSAdmin) |

1. System Requirements

This appendix presents information and requirements related to the system design and operational aspects of the system. Please answer each question completely, concisely, and accurately. Single word answers are acceptable if qualification or explanation is not required.

**Instructions.** Please reiterate the questions with the question number, in the order they are presented, followed immediately by the response. Double space between the question and the answer. Technical or promotional materials may be referenced as attachments or appendices but are not to be used in lieu of answering the question. Do not include these materials in the body of the response.

The following information has been provided to assist in your understanding of Excelsior College’s systems requirements.

| System Req. ID | Title | Description |
| --- | --- | --- |
| EC-SR-001 | Unique DAACS Instances per college | Separate and distinct systems / images each for WGU and Excelsior. At some later point, we will "turn over the keys" to the WGU instance, to WGU-I.T. |
| EC-SR-002 | R Statistic Package | Install R, system pre-req for Concerto package |
| EC-SR-003 | MathJax | Install MathJax for rendering math formulae |
| EC-SR-004 | OpenStack | Install full OpenStack |
| EC-SR-005 | Latex | Install Latex |
| EC-SR-006 | Shiny | Install Shiny |
| EC-SR-007 | SSSD | Install SSSD to enable identity federation. |
| EC-SR-008 | Concerto | Install Concerto to enable C.A.T. |
| EC-SR-009 | LightSide | Open source AES (automated essay scoring) application |
| EC-SR-010 | MySQL | Install stand-alone MySQL instance, per DAACS instance. System pre-req for Concerto. |
| EC-SR-011 | Packaging the DAACS Engine for redeployment | Once we have a RTM image, we need to roll-up all of the DAACS Engine subsystems into an RPM Package (or similar deployment mechanism, such as Docker. Nobody cares what we use as long as it open source) |
| EC-SR-012 | Eliminate obvious security holes | i.e. SQL injection, DoS on relevant application and system services, limit access to all system resources (TCP/IP connectivity) to well-known IP sources, etc. |
| EC-SR-013 | Harden OS | Ensure that standard hardening practices are followed (i.e. firewalling, connection limitations, password file protection, encryption on file system, etc.) |
| EC-SR-014 | Encryption of data at rest | All storage of student-information must be encrypted, even the RDBS storage. |
| EC-SR-015 | Encryption of data in transit | Implement SSL / TLS for all interactions between the users and systems |

1. System Cost Summary

These tables are two simple ways to estimate your costs, for the same work. Therefore, the totals for one table should match the totals of the other table. Vendors are encouraged to contribute their wisdom and modify the Vendor Deliverables list contents to match the vendors approach and desired work breakdown structure. However, the format of the tables must remain intact. Modifications to the table format may disqualify the vendors response.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Cost Estimation by Resource** | | | | |
|  | Estimated  Effort  (hours) | Estimated  Duration  (weeks) | Estimated  Cost  (dollars) |
| Project Management |  |  |  |
| Business / Technical Analyst |  |  |  |
| Application Developer(s) |  |  |  |
| DBA / Database Developer |  |  |  |
| Creative |  |  |  |
| Other (Specify) |  |  |  |
| **TOTALS** |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cost Estimation by Deliverable** | | | | | |
| Deliverable | Delivery Number | Estimated  Effort  (hours) | Estimated  Duration  (weeks) | Estimated  Cost  (dollars) |
| Simple Project Management Plan | DAACS-DVL-001 |  |  |  |
| Simple Turn-over Approach / Plan | DAACS-DVL-002 |  |  |  |
| Basic Interface Specifications for WGU & Excelsior Interfaces | DAACS-DVL-003 |  |  |  |
| Implement Interfaces to WGU & E.C. for Student Updates | DAACS-DVL-004 |  |  |  |
| Identity Federation w/ EGU & EC Identity Stores | DAACS-DVL-005 |  |  |  |
| Validation & Continued Management of Requirements | DAACS-DVL-006 |  |  |  |
| DAACS System Install & Configuration | DAACS-DVL-007 |  |  |  |
| DAACS UI Design Elements, Style Sheets, Icons Complete | DAACS-DVL-008 |  |  |  |
| DAACS Engine Code & Database Implementation | DAACS-DVL-009 |  |  |  |
| Implement Student DAACS UI | DAACS-DVL-010 |  |  |  |
| Implement Writing Scorer UI | DAACS-DVL-011 |  |  |  |
| Implement QA Testing UI | DAACS-DVL-012 |  |  |  |
| DAACS Installation Bundle / Installer | DAACS-DVL-013 |  |  |  |
| Software Test Plan | DAACS-DVL-014 |  |  |  |
| Software Test Scripts | DAACS-DVL-015 |  |  |  |
| Software Test Report | DAACS-DVL-016 |  |  |  |
| System & Software Documentation | DAACS-DVL-017 |  |  |  |
| System Turn-over | DAACS-DVL-018 |  |  |  |
| One-year Software Warranty | DAACS-DVL-019 |  |  |  |
| Bi-Weekly Status Reports | DAACS-DVL-020 |  |  |  |
| System Support – During Pilot | DAACS-DVL-021 |  |  |  |
| System Support – Post Go-Live | DAACS-DVL-022 |  |  |  |
|  | **Totals** |  |  |  |

1. Sample Contract Language

Any contract created as a result of this solicitation will include the following provisions (note that additional provisions may be included at the discretion of Excelsior):

* A provision requiring compliance with E.O. 11246—Equal Employment Opportunity, as amended by E.O. 11375—Amending Executive Order 11246 Relating to Equal Employment Opportunity, and as supplemented by regulations at 41C.F.R. Part 60—Office of Federal Contract Compliance Programs, Equal Employment Opportunity Department of Labor;
* A provision requiring compliance with the Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act (33 U.S.C.1251 et seq.), as amended.
* The recipient will be required to provide the certification under Debarment and Suspension (E.O. 12549 and E.O. 12689) regarding its exclusion status and that of its principal employees, from the General Services Administration's List of Parties Excluded from Federal Procurement or Nonprocurement Programs in accordance with E.O. 12549 and E.O. 12689 - Debarment and Suspension.
* Excelsior will pay the selected recipient of this bid (hereafter referred to as “Contractor”) a fee for the performance of the work described in each Statement of Work appended to any agreements resulting from this solicitation. Contractor will submit an invoice for services performed on a monthly basis and/or upon completion of each project and Excelsior shall render payment within thirty (30) days of invoice. Contractor will submit certified invoices referencing the project in sufficient detail to permit identification of the costs incurred by Contractor and claimed to constitute allowable costs. All payments shall be subject to correction and adjustment upon audit or by reason of disallowance by the State of New York. To this end, an authorized representative of Contractor must attest to the following certification on each invoice:
* All invoices submitted for reimbursement must contain the following certification language: “I certify that this invoice is correct and that it does not duplicate reimbursement of costs or services received from other sources. In addition, I certify that reimbursement is requested only for expenditures on items approved by the terms and conditions of the Agreement with Excelsior.”
* In accordance with 34 CFR 75.118, Contractor will submit annual performance reports to Excelsior in order to be eligible for yearly continuation of funds.
* Right to Audit: Should it be requested Excelsior College, the United States Department of Education, the Comptroller General of the United States, or any of their duly authorized representatives, must have access to any books, documents, papers and records of the contractor which are directly pertinent to a specific program for the purpose of making audits, examinations, excerpts and transcriptions
* Confidentiality: The parties acknowledge the existence of a confidential relationship between them. In order to carry out the purposes of any agreements resulting from this solicitation, the parties may exchange or otherwise access or come into possession of the other party’s confidential information. The parties understand and agree that all confidential information exchanged between them or otherwise accessed or obtained pursuant to any agreements resulting from this solicitation is strictly confidential, has been disclosed for business purposes only and must be maintained in strictly secure conditions at all times. Each party hereto further agrees to make no other use of the other party’s confidential information disclosed pursuant to any agreements resulting from this solicitation, to refrain from disclosing such confidential information to third parties, to make the confidential information available only to those employees or agents with a need to know, to inform all such employees and agents of the confidential nature of the confidential information and to require each such employee or agent to agree to retain such confidential information in confidence.
* Work for Hire & Intent to Publish Final Works: The parties agree that, as a condition of the US Department of Education Fund for the Improvement of Postsecondary Education, Diagnostic Assessment and Achievement of College Skills: Personalized Feedback and Targeted Student Supports grant, all intellectual property rights under any agreements resulting from this solicitation shall fall into public domain.
* Right to Reject & Right to Remedy: If Excelsior does not find the deliverables specified in any Statement of Work satisfactory, Excelsior shall provide Contractor written notice of such deficiencies and Contractor shall have thirty (30) days to address/correct such deficiencies to Excelsior’s satisfaction. In the event Contractor fails to address/correct any such deficiencies identified by Excelsior within thirty (30) days, Excelsior may terminate Contractor’s continuation of work on the project at Excelsior’s discretion. Notwithstanding the foregoing, either party hereto may terminate this agreement at any time upon sixty (60) days written notice to the other party. In the event of such early termination, Excelsior will pay Contractor a prorated fee for any work performed to date.
* Rights of Assignment: The parties agree that the benefits and responsibilities under any agreements resulting from this solicitation may not be assigned to another party without the express written agreement of the other party.
* Indemnification: Each party hereto agrees to indemnify the other, and its trustees, officers, employees and agents and shall defend and hold each other harmless from and against any and all actions, claims, lawsuits, proceedings, demands, damages, fines, judgments, liabilities, losses, penalties, settlements or expenses, including reasonable attorney’s fees and other litigation expenses incurred by any indemnitee, arising from or occurring as a result of a claim brought by a third party arising through the fault, negligence, willful misconduct or other wrongdoing of the indemnitor. Each Party hereto further agrees to maintain sufficient insurance coverage to comply with its indemnification obligations hereunder.
* Non-discrimination: The parties agree that the services to be performed are secular in nature and shall be performed in a manner that does not discriminate on the basis of religious belief, or promote or discourage adherence to religion in general or particular religious beliefs. Contractor agrees services shall be performed in a manner that does not discriminate on the basis of race, color, sex (including gender expression), national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status.
* Choice of Law: Any disputes arising through a contractual agreement as a result of this solicitation shall be governed by the substantive law of the State of New York without regard to any conflicts of law principles.
* Publications & Promotions: If Contractor wishes to issue a press release or announcement regarding the Project, Contractor must share an advanced copy with Excelsior and obtain advance approval from the Funder of the content and timing of the release. Contractor also agrees to obtain advance approval from Excelsior or the Funder, respectively, for any use of Excelsior's or the Funder's trade names, service marks, logos or other intellectual property.
* CFR: In accordance with the Code of Federal Regulations (CFR) at 2 CFR 175, Contractor may not engage in severe forms of trafficking in persons during the period of time that the award is in effect; procure a commercial sex act during the period of time that the award is in effect; or use forced labor in the performance of any activities under the award.
* CFR: In accordance with 2 CFR 200.415 an authorized representative of Contractor must attest to the following certification on each report: “By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and objectives set forth in the Terms and Conditions as outlined in Grant Award Notification P116F150077 from the US Department of Education (Attachment A). I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (U.S. Code Title 18, Section 1001 and Title 31, Sections 3729-3730 and 3801-3812).”
* CFR: Contractor agrees to file the required certification under the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352) and provide Excelsior College a copy of the certification.
* CFR: Contractor agrees to comply with all applicable statutory and regulatory requirements in determining whether costs are reasonable and necessary, especially the Cost Principles for Federal grants set out at 2 CFR 200 (otherwise known as the Uniform Guidance for Federal Awards), Subpart E, Cost Principles, sections 200.400-200.411.
* CFR: Contractor agrees that personnel are prohibited from text messaging while driving a government owned vehicle, or while driving their own privately owned vehicle during official project business, or from using government supplied electronic equipment to text message or email when driving. Contractor agrees to comply with these conditions under Executive Order 13513, “Federal Leadership on Reducing Text Messaging While Driving,” October 1, 2009.
* CFR: Contractor agrees to comply with all relevant and applicable statutory and regulatory requirements in 2 CFR Part 200, 34 CFR 75, 76, 77, 79, 81, 82, 84, 86, 97, 98, and 99 (otherwise known as the Education Department General Administrative Regulations, or EDGAR).
* CFR: Contractor agrees to comply with all relevant Terms and Conditions not already mentioned above, as outlined in Grant Award Notification P116F150077 from the US Department of Education (Attachment A). Contractor agrees to comply with any relevant changes should the US Department of Education issue revised or additional Award Notifications.
* CFR: Contractor must certify that, to the best of your knowledge, you do not advocate, plan, sponsor, commit, threaten to commit, or support terrorism. By your acceptance, you agree to provide us with information required for us to comply with Executive Order 13224, the USA Patriot Act, and other applicable laws, administrative rules, and Executive Orders. You also agree that you are not designated on (a) the Annex to Executive Order No. 13224, as amended or supplemented from time to time, or (b) the Lists of Specially Designated Nationals or Blocked Persons maintained by the Office of Foreign Assets Controls of the U.S. Department of the Treasury. Finally, you certify that you will not provide material support or resources to an individual or entity that you know, or have reason to know, is acting as an agent for any individual or entity that advocates, plans, sponsors, engages in, or has engaged in, terrorist activity, or that has been so designated, and will immediately cease such support if an entity is so designated after the date of agreement.