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Due to the nature of the product architecture, it may not be possible to safely include all features described in this document without risking significant destabilization of the code.
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Purpose
This document provides an overview of features and enhancements included in release Campus Solutions 9.0 Additional Features July 2011. It is intended solely to help you assess the business benefits of and planning for the upgrade of the additional features described.

Executive Summary
This document provides an overview of the new features planned to be delivered in Oracle’s PeopleSoft Campus Solutions (CS) 9.0 Additional Features July 2011. It is a preview intended to help you understand the new features and to assess their applicability to your institution in order to help you plan your IT projects and investments.

The major feature previewed in this document is Enrollment Web Services (EWS), Phase 1. A Service Oriented Architecture (SOA) is an architectural approach that allows us to deliver flexible and reusable service operations that you can leverage in various applications of your own design. Technology managers and staff will be particularly interested in the descriptions of the initial three web services that are targeted for delivery since they represent potentially new ways to deploy information supporting transactions to students.

Our goal is to help your organization leverage technology to its fullest and increase the efficiency and effectiveness of your operations. Additional resources are planned to help your organization determine the impacts of implementing these new capabilities. We encourage you to visit My Oracle Support frequently to stay apprised of resources as they become available. These planned resources are outlined throughout this document and represent our commitment to keep you informed and prepared to take full advantage of the features that are available through our Continuous Delivery Model. While every attempt is made to accurately describe our intentions, the delivered additional features may not have every feature or capability mentioned in this document and a specific feature may become part of a different application or have a different product name than those cited in this document.
Path to a Service Oriented Architecture

As we modernize and evolve Campus Solutions, our focus continues to be on a service oriented approach for the architecture and design of our products. Our commitment to this effort started when we introduced a Web Services Framework for Campus Solutions (CS) 9.0 that includes an extensible framework using PeopleCode application classes and Integration Broker to make building integrations simpler.

In Feature Pack 1 (May, 2009) we introduced the Constituent Web Service that supports the integration of constituent data between CS and other systems in a higher education IT topology.

In Feature Pack 3 (July, 2010) we introduced Admission Applications Web Services (AAWS) that support the provisioning of an applicant through the process of saving and submitting an application, ensuring the application data is captured from an online “form” and processed through delivered staging tables.

In Additional Features January 2011, we introduced Student Financials web services that support the initiation and completion of Admissions Application Fee payment utilizing the hosted payment framework.

For Additional Features July 2011, we have turned our attention to providing web services that support business processes related to enrollment. Our plan is to deliver an initial set of Enrollment Web Services that support browsing your course catalog, searching your class schedule, and providing the detailed display of enrolled classes to a student.

We also plan to continue to construct and deliver additional services with our Continuous Delivery model. It is our intention for customers to utilize these delivered web services as they construct custom user interfaces they wish to deploy to their student, applicant and faculty communities.

While we have used the Continuous Delivery model to deliver flexible solutions based on SOA since 2009, there may be some readers who are new to web services. Below is a short introduction to what a web service is and some of the expected benefits of using services in the campus IT ecosystem.

Web services:

- Are software-powered resources or functional components whose capabilities can be accessed over the internet.
- Organize a transaction in which data is sent and received in the form of XML by using standard internet protocols (HTTP, HTTPS, SOAP, WSDL, and UDDI).
- Are self-contained, self-describing, modular applications that can be published, located, and invoked across the Web.
One of the most important benefits of web services is their ability to provide a standard way for disparate applications to communicate with one another. This interoperability allows flexibility and agility when displaying and utilizing data in self-service transactions. Interoperability promotes your ability to switch or upgrade your user experience with less effort and at lower costs. Web services provide re-usable application components, enabling one service to be used by multiple applications and other services. Finally, services provided on the web are more easily accessed and used by students, faculty, donors, and visitors using a variety of devices and applications.

Note: For readers new to web services, one helpful resource is the Oracle white paper, *PeopleSoft Campus Solutions: The Service-Enabled Campus*. This paper can be accessed through the Higher Education User Group (HEUG) site at www.HEUG.org. (HEUG member sign-in required).

Because the use of web services is relatively new within the CS product, Oracle plans to support the implementation of service-enabled features with new documentation. Traditional PeopleBooks will continue to support implementation of PeopleTools-based features. Oracle plans to create a series of “Web Services Guides” that will help customers understand how to implement delivered new services. These already include:

- PeopleSoft Campus Solutions Constituent Web Services Developer’s Guide (May, 2009)
- PeopleSoft Campus Solutions Affiliations Developer’s Guide (May, 2009)
- PeopleSoft Campus Solutions Admission Applications Web Services Developer’s Guide (July, 2010, Updated April 2011)
- PeopleSoft Campus Solutions Admissions Applications Users’ Guide (July, 2010, Updated April 2011)

Documentation planned for July 2011 includes:

- *Enrollment Web Services Developer’s Guide*. Topics include: SOA User Interface, Web Services and APIs, Web Service Security Settings, Student Access, Publishing Web Services, Setting up Integration Broker, and other implementation and installation guidance.

These references are accessible in conjunction with the deployment of Additional Features July 2011. Customers should log onto My Oracle Support and navigate to the Oracle Campus Solutions Documentation Home Page. In addition to PeopleBooks and these new guides, customers will want to be familiar with how to use PeopleTools integration technologies, including Integration Broker.
Campus Solutions Enrollment Web Services (EWS) Phase 1

One of the primary objectives in utilizing SOA is to provide CS customers with the ability to use a tool of choice to build and deploy “front end” user interfaces with appropriate institution-specific attributes. This provides the institution with the ability to manage the design, look, and feel of the self-service experience as well as offer certain activities and transactions to a broader set of devices. Focusing our efforts on providing web services and expanded data elements allows us to concentrate on defining fundamental application business technology and functionality that can be deployed to various devices regardless of the design of a user interface (UI). Because the planned EWS complies with World Wide Web Consortium standards, they can be utilized by various end-user devices (such as a browser or a smart phone), enterprise applications, or any other third-party software that can interface through standards-based design.

EWS can be used by:

- Oracle presentation technologies such as Portal, Application Developer Framework, and PeopleSoft components and pages
- Oracle middleware such as Enterprise Service Bus and BPEL
- Oracle applications such as PeopleSoft, Enterprise One, and Oracle E-Business Suite
- Third-party presentation technologies
- Third-party middleware and applications

Course Catalog, Class Search and EWS Operations

Institutions have different needs, requirements and preferences for interacting with their students during the enrollment process. It is essential that the interaction between the student and institution is a positive experience that offers information-rich transactions with simplicity and convenience. The user interface through which a student interacts with the institution can vary widely from conventional web browser-based methods to a range of current generation handheld devices (smart phone, tablets, etc). In order to facilitate this type of flexibility, a suite of web services is planned to support the Self-Service Enrollment process regardless of the user interface technology deployed at an institution. All these services have been designed based on the existing functionality for student self-service. These services do not address the functionality for other roles such as administrator, faculty, adviser, etc. Additional services that support transactions performed by these and other roles are planned for a future release.

The EWS for Additional Features July 2011 is targeted to offer access to the CS Student Records and Enrollment functionality through the following web services:

- Browse Course Catalog
- Class Search
Each of these services is defined by two web service operations which generally support an inbound request and an outbound response as described below. Any user interface that is web-service enabled and SOAP compliant can access these web services.

**Course Catalog Web Service Operations**

Currently, the CS *Browse Course Catalog* functionality enables users to see a list of courses offered at your institution and to drill down to examine course details, see terms in which the course is offered, and within those terms, the class sections scheduled. The *Browse Course Catalog* service provides the ability for you to provide a user interface to the same data outside of the CS delivered components or the Campus Solutions Student Center.

**Browse Course Catalog Web Service Operation (SSR_GET_COURSES)**

This service operation is used to retrieve a list of subjects and courses for a particular institution. It allows the student to initiate searches against the Student Records Course Catalog using the following parameters and returns the list of subjects and courses summary:
• Search Character
• Subject
• Search Mode
• As of Date

The Browse Course Catalog service can be used to retrieve matches in one of two different modes, Subject Header or Course Detail.

When used in subject header mode, the returned matches are summarized and only subject header information is returned. This mode is useful when presenting results to a student in a hierarchical summary display. It also has the performance benefit of not returning complete course detail for all matching courses on the initial search.

When used in course detail mode, returned results contain course detail in a full course summary. If further detailed information is required for a particular course it can be obtained via the Get Course Offering (SSR_GET_COURSE_OFFERING) service.

Get Course Offering Web Service Operation (SSR_GET_COURSE_OFFERING)

The response from the SSR_GET_COURSE service operation is used for the request parameters for getting the course offering details for a selected subject and course combination. This service operation returns the course details along with the terms offered for the particular course. The user can then continue the class search for one of the terms offered.

This service accepts the following parameters:

• Institution
• Course ID
• Course Offer Number
• Course Topic ID
• As of Date

Class Search Web Service Operations

Current CS search functionality enables students to search for classes scheduled within a specific institution and term using a variety of criteria to view class search results and to drill down on a scheduled class to view class detail and enrollment requirements.

The Class Search service provides the ability for you to provide a user interface that accesses the same data available in the CS delivered components or the CS Student Center.
Retrieve Classes Web Service Operation (SSR_GET_CLASSES)

This web service offers the ability to search for classes based on user-specified criteria and to view the search results. The request to the SSR_GET_CLASSES service operation consists of institution and the term for which the search is relevant. Also, the service recognizes user-provided optional input request parameters such as subject, catalog number and course career, class number, course ID, course offering number, session, class section, open only, open entry/exit classes, course title keyword, course component, instruction mode, campus, location, meeting start and end time, day of week, instructor last name, maximum/minimum units which will be used for further filtering the class search.

Along with the class search result, the response also includes the following:

- **SSR_COURSE_COUNT** – the count of courses matching the search criteria.
- **SSR_CLASS_COUNT** – the count of class sections matching the search criteria.

Error messaging can also be accommodated as the result includes:

- **SSR_ERR_LMT_EXCEED** – error message for Search Limit Exceeded is set to display if search results exceed the error limit specified in the Student Records Installation table (Setup SACR > Install > Student Records Installation). If a search result exceeds the error threshold, the response will not include any class data.
- **SSR_WRN_LMT_EXCEED** – warning message for Search Limit Exceeded is set to display if the search result exceeds the warning limit specified in the installation table and the Obey Warning limit in the request is set to YES. In this scenario, the response will include the warning message along with any class data.

Retrieve Class Section Detail Web Service Operation (SSR_GET_CLASS_SECTION)

The response from the SSR_GET_CLASSES operation is used to select a class and populate the request for the SSR_GET_CLASS_SECTION service operation. This operation returns the class details for the requested class. The operation supports user-supplied criteria depending on the class search mode, which is also a request parameter. If class search mode is Class Section, then the request includes institution, course ID, offer number, term, session, and class section. If the class search mode is Class Number, then the request will include term and class number. The resulting response displays details of class section, class combined section, class component, class meeting pattern, class text books, and enrollment information.

Study List Web Service Operations

Currently, CS Student Center functionality deploys class schedule detail in a display called My Class Schedule. The Study List Web Service delivers the ability for you to provide a user interface of your design to access this same data outside of the Student Center for students to view their class schedule, class detail and related academic deadlines.
Get Enrollment Web Service Operation (SSR_GET_ENROLLMENT)

This service allows the retrieval of a student’s enrollment details. The request to the service operation consists of mandatory parameters EMPLID, institution, academic career, and term. The service operation retrieves the enrollment details for enrolled class sections, dropped class sections, and waitlisted class sections in the response.

Get Class Deadlines Web Service Operation (SSR_GET_DEADLINE)

In order to provide important decision-making information, the Study List Web Service includes the ability to display various deadlines related to class section dropping and withdrawal activities. After invoking the Get Enrollment service, the Study List Web Service is used to retrieve deadline details. This request to the service operation consists of EMPLID, institution, Academic Career, Term, Academic Program, Course ID, Course Offering Number, Session and Class Section.

Scope of Data: Entities and the Entity Registry

An entity is an object that provides access (view, create, update) to data in a record and is implemented through an application class. By design, an entity is the primary point of access to the underlying records so that potential inconsistencies from having the same logic in multiple places are avoided. This helps ensure the code is reusable and maintenance is easier.

In July, 2010, we introduced an innovative structure called the Entity Registry in which data is defined and organized. The Entity Registry stores entity records, application classes, properties and entity relationships. It stores the information relevant to building XML and has utilities for generating schemas and base code which can then be modified. The Entity Registry is a comprehensive source that defines the XSD (XML Schema Definition) for Campus Solutions core tables and the data they contain. The entities for all core data records within the enrollment and course areas are delivered within the Entity Registry component. (Navigation: Set Up SACR > System Administration > Entity > Entity Registry). The entity data is considered system data and is necessary for the correct functioning of EWS as it stores all the details of the entities being delivered as part of EWS.
The following tables describe the entities that are planned for delivery in Additional Features July 2011.

### Course Catalog Web Service Operations

#### SERVICE OPERATION: SSR_GET_COURSES

<table>
<thead>
<tr>
<th>ENTITY</th>
<th>DB RECORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>REQUEST ENTITY</td>
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</tr>
<tr>
<td>Course Search Request</td>
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</tr>
<tr>
<td>RESPONSE ENTITIES</td>
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<tr>
<td>Course Search Result</td>
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<tr>
<td>Course Subject</td>
<td>SUBJECT_VW</td>
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<tr>
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<tr>
<td>Course Offering Summary</td>
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#### SERVICE OPERATION: SSR_GET_COURSE_OFFERING

<table>
<thead>
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<tbody>
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<tr>
<td>Course Offering Detail Request</td>
<td>SSR_CRS_OFF_RQ</td>
</tr>
<tr>
<td>RESPONSE ENTITIES</td>
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<tr>
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<td>SSR_CRS_OFF_RE</td>
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<td>Course Offering Detail</td>
<td>SSR_CRS_OFF_VW</td>
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<td>Course Offering Derived</td>
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<tr>
<td>Course Component Detail</td>
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<tr>
<td>Course Attributes Detail</td>
<td>CRSE_ATTR_VW</td>
</tr>
<tr>
<td>Course Offering Term</td>
<td>SSS_CRSETERM_V</td>
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</table>
### Class Search Web Service Operations

**SERVICE OPERATION: SSR_GET_CLASSES**

<table>
<thead>
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<th>ENTITY</th>
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</thead>
<tbody>
<tr>
<td>REQUEST ENTITY</td>
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<tr>
<td>RESPONSE ENTITIES</td>
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<tr>
<td></td>
<td>Class Search Subject SSR_CLSSRCH_SUB</td>
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<td></td>
<td>Class Search Summary SSR_CLSSRCH_SUM</td>
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<td></td>
<td>Class Section Meeting Pattern SSR_CLSSRCH_MTG</td>
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**SERVICE OPERATION: SSR_GET_CLASS_SECTION**

<table>
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<th>ENTITY</th>
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<tbody>
<tr>
<td>REQUEST ENTITY</td>
<td>Class Section Request SSR_CLSDTL_RE</td>
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<tr>
<td>RESPONSE ENTITIES</td>
<td>Class Section Result SSR_CRS_OFF_RE</td>
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<td>Class Section SSR_CLSSRCH_INF</td>
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<td>Class Section Meeting Pattern SSR_CLSSRCH_MTG</td>
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<td></td>
<td>Class Section Component SSR_CLSSRCH_COM</td>
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<td>Class Section Combined SSR_CLSSRCH_CMB</td>
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<td>Class Section Textbook SSR_CLSSRCH_TXB</td>
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<td>Class Section Textbook Details SSR_CLTXBDTL_VW</td>
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<tr>
<td></td>
<td>Class Section Enrollment Information SSR_CLSSRCH_ENRL</td>
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</table>
Study List Web Service Operations

**SERVICE OPERATION: SSR_GET_ENROLLMENT**

<table>
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<th>ENTITY</th>
<th>DB RECORD</th>
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<tbody>
<tr>
<td>REQUEST ENTITY</td>
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<td>RESPONSE ENTITIES</td>
<td></td>
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<tr>
<td>Study List</td>
<td>SSR_STDYLST_WRK</td>
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<tr>
<td>Enrollment Details</td>
<td>SSR_STDYLST_WRK</td>
</tr>
<tr>
<td>Class Section</td>
<td>SSR_STDYLST_WRK</td>
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</table>

**SERVICE OPERATION: SSR_DEADLINES**

<table>
<thead>
<tr>
<th>ENTITY</th>
<th>DB RECORD</th>
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</thead>
<tbody>
<tr>
<td>REQUEST ENTITY</td>
<td>SSR_STDYLST_WRK</td>
</tr>
<tr>
<td>RESPONSE ENTITIES</td>
<td></td>
</tr>
<tr>
<td>Study List Deadlines</td>
<td>SSR_STDYLST_WRK</td>
</tr>
</tbody>
</table>

For further information about the *Entity Registry* in PeopleBooks, you can access My Oracle Support and navigate to CS 9.0 Bundle #21 *Functional Documentation and Additional Features April 2011* [ID 1314754.1]. (An updated version of this document is planned for delivery with the Additional Features July 2011 bundle.)

List of Values Service

Self-service user interfaces constructed outside of your PeopleSoft Campus Solutions database may contain data fields that have predefined or “prompt” values used to control and streamline data entry for the user. If you want to display these values that are setup inside your PeopleSoft Campus Solutions database, whether it is for a prompt field or a field that contains translated values, the List of Values Web Service (SCC_GET_LOV introduced in Feature Pack 3, July 2010) can be used. The web service recognizes and provides the values that are used to populate drop-down list boxes on a user interface and for validating selections. (Navigation: Set Up SACR > System Administration > Utilities > List of Values)

**Browse Course Catalog Web Service Example**

In a typical user interface for browsing the course catalog, it is likely that you would want to deploy a list of valid institution values to the user. If the UI resides in PeopleSoft Campus Solutions, you can have the users prompting against the institution field using the regular PeopleTools prompt logic. However, if the UI resides outside of your PeopleSoft Campus...
Solutions system, you can take advantage of the delivered *List of Values* web service operation to return the institution values you have setup in your Campus Solutions system. The user can then select one institution and the UI can include logic to pass that value to the *Get Courses* service operation (SSR_GET_COURSES). The UI can use the following input in the request message to invoke the LOV web service to populate a list of institutions.

RECORDNAME: SSR_CRS_SRCH_RQ  
FIELDNAME: INSTITUTION

If you want to either restrict the list of institutions returned or define what value description to return to the users (for example: short or long description), use the *List of Values* setup page to configure which values you want to return and how you want to return them.
In the example on the previous page, the LOV service response will include the valid institutions from the INSTITUTION_TBL by giving your formal description (DESCRFORMAL). Also the list will exclude three institutions (PSAUS, PSGBR and PSNLD) for which you may not be ready to display in the course catalogs. Your users will therefore only be able to select an institution from a restricted list.

Information regarding using the List of Values web service with Enrollment web services is targeted for inclusion in the Enrollment Web Services User Guide. For documentation about List of Values Setup in PeopleBooks, please access My Oracle Support and navigate to CS 9.0 Bundle #21 Functional Documentation and Additional Features April 2011 [ID 1314754.1]. (An updated version of this document is planned for delivery with the Additional Features July 2011 bundle.)

Beyond Additional Features, July 2011: Planned Additions to Enrollment Web Services

As part of the Enrollment Web Services initiative, we anticipate delivering enrollment web services using our Continuous Delivery model which will facilitate easy customer adoption. In addition to delivering the three services we have discussed in this document, we plan to deliver the following transaction based services in upcoming bundles:

- **Shopping Cart Web Service Operations** – The existing enrollment Shopping Cart self-service functionality for student is planned to be exposed through a web service which will have the following service operations:
  - Add a class item to the enrollment shopping cart
  - Clear classes that has been added to the enrollment shopping cart
  - Retrieve and view the classes in the enrollment shopping cart
  - Retrieve a particular class section from the enrollment shopping cart
  - Checkout a class from the enrollment shopping cart
  - Remove a class from the enrollment shopping cart added earlier
  - Save multiple classes to the enrollment shopping cart
  - Perform Pre Enrollment validation.

- **Enrollment Request Web Service Operations** – In order to allow students to manage enrollment, the Enrollment Request service is targeted to include:
  - Add Enrollment: This service operation will allow a user to add a Class to a shopping cart and enroll
  - Drop Enrollment: This will allow an already enrolled class to be dropped.
  - Swap Enrollment: This service operation will allow a student to swap an already enrolled class with a new class.
  - Maintain Enrollment: This will allow a student to edit enrollment details.
Program Enrollment and Marks and Exams Phase 1

In the *Statement of Direction – Campus Solutions 2011*, we announced two major initiatives:

- **Program Enrollment**: Structured enrollment controls and web services to extend enrollment functionality
- **Marks and Exams**: Structure and rules to support flexible progression calculation and exam management

These two areas of new development represent only the first phase of an extensive effort that targets new and innovative capabilities for our customers. Enrollment and student assessment are at the core of any student system. With Additional Features July 2011, we are introducing the basic framework and setup elements that will allow us to extend the enrollment and assessment functionality for the next generation student system.

It is important to note that Oracle does not expect customers to be able to deploy the structures delivered in Phase 1. In fact, the features in the July 2011 delivery have not passed through the official Quality Assurance process nor have they been documented in Campus Solutions PeopleBooks. So, why did we include these infrastructure pieces in the code line if we don’t want customers to try to deploy them at this time? Because these new structures provide a significant new range of functionality for our customers, we wanted to introduce the infrastructure pieces now, with administrative support and eventually student support coming in following Additional Features releases. For now, Oracle anticipates our customers will evaluate the new capability and begin their analysis for how they can leverage the feature, once fully delivered, and reduce their dependence on customizations. What we plan to release as part of Additional Features July 2011 are the foundation pieces for defining the Program Enrollment structure and the Marks and Exams structures.

Documents describing these features are planned. The initial documents covering general set up for both features are targeted to coincide with the availability of Additional Features July 2011. An additional document, offering more detailed implementation suggestions, country-specific options and use cases that illustrate how to utilize these new components is planned for later in 2011. If you choose to evaluate these features, we urge you to take advantage of these documents as you examine the applicability of the new features to your institution.

**Conclusion**

The introduction of the first phase of Enrollment Web Services targeted for Additional Features July 2011 illustrates Oracle’s commitment to advancing an innovative architectural model for Campus Solutions that is enabled by extending services-based integration. We can do this by employing a Continuous Delivery model which provides the ability to take advantage of new and important technology on an ongoing basis. The planned development related to Program
Enrollment and Marks and Exams included in this Additional Features bundle also demonstrate our forward-thinking approach to providing enhanced capabilities to our customers. The PeopleSoft Campus Solutions 9.0 Additional Features July 2011 is intended to meet customer needs, extend value, and provide leadership for the global education community. We encourage all business areas to evaluate the content of this Additional Features bundle for applicability to their business processes.