Achievement Council

2013 Transfer Report: A Review of Improvements in Transfer

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Summary

The Washington Student Achievement Council is charged with establishing transfer policies to improve student transitions and report progress to the Legislature on a biennial basis. Effective transfer policy requires continued engagement of the institutions and higher education agencies in the state. As a result, transfer policy is implemented and maintained through the cooperative efforts of the state institutions of higher education, the State Board for Community and Technical Colleges (SBCTC), and the Council.

This work is supported by many statewide in-sector and cross-sector groups and offices involved in various aspects of transfer. Two primary groups guiding and assessing the day-to-day effectiveness of transfer agreements are the Joint Transfer Council (JTC) and the Intercollege Relations Commission (ICRC).

Over the past two years the state has seen unprecedented budget cuts, and in the most recent year a significant decline in enrollment at the community and technical colleges. Despite those changes, the report highlights increases in the proportion of students who enroll in the community and technical colleges with an intent to transfer, and growth in the number of students completing course work under transfer agreements that are designed to facilitate transfer to four-year institutions without loss of credit. However, the total number of students who ultimately transferred was roughly the same as two years ago.

The transfer groups have made significant progress on a number of policy issues. Through their efforts over the past two years, the state has:

- Revised the policy for updates to the transfer agreements;
- Circulated proposed revisions to the Direct Transfer Agreement and modified the communications requirement;
- Eliminated five Major Related Programs that were not attracting and completing students:
- Revised the most popular Major Related Program and begun revisions on two others;
- Established a Transfer Liaison on the Student Achievement Council staff to help students resolve transfer issues: and
- Improved communication to students with website revisions and the publication of "A Student Guide to Transfer in Washington."

Other system improvements include the development of a data dashboard for the public baccalaureates that includes information on transfer, development of "Washington 45," which provides information on a year of transferrable general education coursework accepted throughout the system, information about equivalencies for dual credit courses, and establishment of the Prior Learning Assessment Work Group.

Finally, the report lays out the key work activities for the next two years. These activities are centered on improvements in metrics to assess performance of transfer in Washington and continuous improvement of existing transfer policies and practices.

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Introduction

The Washington Student Achievement Council (Council) is tasked with "...improving student transitions from secondary to postsecondary education and training and between and among postsecondary institutions." 1

More than 70 percent of the students who access higher education in Washington do so first at a two-year institution.² Washington's two-year colleges account for a higher percentage of public and private college student enrollments (49 percent) than in the U.S. in general (34 percent).³ Strong transfer policy is critical to student access and completion.

Since the development of the first Direct Transfer Agreement (DTA) over 40 years ago. more than 500,000 students have used this pathway to move from our community and technical college system to public and private baccalaureate institutions in Washington.⁴ The DTA is a model for the U.S. and, as recently as two years ago, California's legislature directed the higher education system in that state to adopt a similar pathway.⁵

Transfer policy is implemented and maintained through the cooperative efforts of the state institutions of higher education, the State Board for Community and Technical Colleges, and the Council. This work is supported by many statewide in-sector and cross-sector groups and offices involved in various aspects of transfer. Two primary groups guiding and assessing the day-to-day effectiveness of transfer agreements are the Joint Transfer Council (ITC) and the Intercollege Relations Commission (ICRC).

The Council has a statutory responsibility to establish and adopt transfer policies, improve educational transitions, and deliver a biennial report to the Legislature that:

- 1. Reports progress on transfer indicators
- 2. Outlines development of additional transfer associate degrees, and
- 3. Describes other improvements in transfer efficiency.⁶

What is Transfer?

Transfer is the process whereby a student withdraws from one school and enters another, and the student's work at the sending institution is applied toward requirements at the receiving institution.

¹ RCW 28B.77.001

² Source: State Board for Community and Technical Colleges.

³ Source: Washington Higher Education Coordinating Board. 2012. Key Facts About Higher Education in Washington. HECB staff analysis of data from Integrated Postsecondary Education Data System (IPEDS), National center for Education Statistics, fall 2010.

^{4500,000} is a conservative estimate based on a review of SBCTC Academic Year Reports from 1971 to the present Implementing Statewide Transfer and Articulation Reform. Council for the Study of Community Colleges. 2011. www.cscconline.org/home/research/research-and-reports-blog/2011/4/11/implementing-statewide-transfer-and-articulationreform-an-analy/.

⁶ RCW 28B.77.020, 28B.77.210, 28B.77.215, and 28B.77.220

Transfer Policy in Washington

Students transfer for many reasons, and there is a great deal of diversity in types of institutions students attend. The process can be complicated by the fact that many students who transfer attend more than two institutions before receiving a degree or certificate.

As a result, strong transfer policies are required so that students are treated fairly in the process and can understand, in advance, the implications of transferring from one institution to another. In addition, the institution that ultimately awards the degree must validate that the student has met the learning outcomes associated with any degree they award. For that reason, agreement about expectations and outcomes across the system is an important part of transfer policy.

Like most other states, transfer policy in Washington has been focused primarily on "vertical transfer," which generally refers to a student who is transferring from a two-year to a four-year institution that awards a higher level degree. While vertical transfer is the most common transfer pathway, and the best supported by state policy, it is important to note other paths students take.

Other transfer pathways include:

- 1. **Horizontal Transfer**, in which a student transfers between two institutions that award degrees at the same level. For example:
 - a. Transfer between two two-year institutions or
 - b. Transfer between two four-year institutions;
- 2. **Reverse Transfer** is transfer from an institution that awards a higher degree level to one that awards at a lower degree level. For example: transfer from a four-year to a two-year institution.
- 3. **Swirling** is movement back and forth between institutions. This generally refers to students' movement between two-year and four-year institutions two or more times.

Washington State Transfer Degrees

To support transfer, Washington utilizes two statewide transfer agreements, the Direct Transfer Agreement and the Associate of Science–Transfer. In addition, the state has developed 19 Major Related Programs, which are course plans that fit within either the Direct Transfer Agreement or the Associate of Science–Transfer.

Students completing any of these transfer degrees are guaranteed 90 transferrable quarter credits (even if they change majors). Those credits may include up to 15 quarter credits for 'technical' courses that may not transfer outside the degree. In addition, the agreements stipulate that students would not be required to retake courses or course sequences they have already completed.

The agreements are designed to serve students entering a variety of majors, but all fit within the following framework:

- **Direct Transfer Agreement Associate Degree (DTA)**: 60 quarter credits of general education courses, plus courses that prepare students for classes in their major and electives.
- **Associate of Science Transfer (AS-T)**: Includes the math and science courses needed to prepare students for biology, chemistry, earth science, physics, computer science and engineering majors.
- Major Related Program (MRP): Course plans under the DTA or AS-T that prepare students for specific majors. Course plans include general education courses and a limited number of electives. Major related programs are developed for majors that are offered at multiple baccalaureate institutions, have significant pre-requisites in the freshmen and/or sophomore year, and serve a large number of students.

In addition, the Associate in Applied Science (AAS-T) is a workforce degree developed to meet industry standards for immediate employment. Students completing these degrees may apply up to 90 credits toward specific applied baccalaureate degrees.

Progress on Transfer Indicators

Progress indicators for transfer provide information about student interest in transfer, completion of transfer degrees, and completion of vertical transfer. Additionally, with the development of the state longitudinal data system, we are beginning to get improved information on student mobility.

For example, in June 2012, the Educational Research and Data Center (ERDC) published the *Postsecondary Education Enrollment Patterns* research brief, which provides longitudinal data on a cohort of public high school students who graduated in the 2004-05 academic year.

Among the graduates, 71 percent enrolled in postsecondary education within five years, and a third of those students (35 percent) attended two or more postsecondary institutions.

The remainder of this section will address the current transfer measures, which include:

- 1. Intent to transfer
- 2. Completion of Transfer Degrees and MRPs
- 3. Successful Vertical Transfer
- 4. Newly available completion data for the public four-year institutions.

Intent to transfer

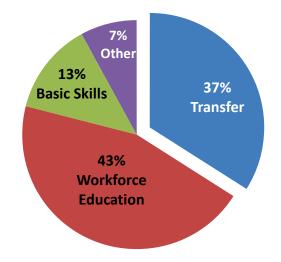
In the 2011-12 academic year, 113,697 students indicated an intent to transfer. That year saw the first decline in Community and Technical College (CTC) system enrollment since 2005-06. Nearly 25,000 fewer students enrolled than in the prior year.

As a result, the number of students who declared transfer intent increased only slightly over the past two years, but the proportion of students increased from 34 percent in 2009-10 to 37 percent in 2011-12. Figure 2 provides a breakdown of student intent.

The Community and Technical Colleges serve many students whose primary purpose for attending college is to get a job—or a better job. Some of these students will transfer, but it is important to remember that many never intend to pursue further education.

Figure 1. Percentage of Community College Students by Educational Goal, 2011-12

- · 37% transfer-seeking
- 43% seek workforce education
- 13% seek basic skills



Source: SBCTC (2012). Headcount by Purpose of Attending – State Supported. SBCTC Data Warehouse. Academic Year Report 2011-12. http://www.sbctc.edu/college/ d-acad2011-12.aspx.

Completion of Transfer Degrees and Major Related Programs

The Direct Transfer Agreement, Associate in Science–Transfer, and Major Related Programs based on these two transfer degrees were designed to facilitate the movement of students from two-year to four-year colleges without loss of credit.

During 2011-12, 15,729 students completed the DTA degree (Table 1). This represents a 19 percent increase over the last two years. More than 1,000 students completed the science-related transfer degree (AS-T) during 2011-12, an increase of 39 percent over the past two years.

Table 1. Community College Students Following Transfer Degree Pathways

Transfer Associate Degree	2007-08	2009-10	2011-12	Growth 2008-2010	Growth 2010-2012
Direct Transfer Agreement	12,554	13,243	15,729	5%	19%
Associate in Science–Transfer	625	730	1,018	17%	39%
Total Transfer Degree Pathways	13,179	13,973	16,747	6%	20%

Source: Source: State Board for Community and Technical Colleges. (2012). SBCTC Academic Year Report 2011-12

Of the students completing a transfer degree pathway, 10 percent (1,700 total students) completed the specialized Major Related Program degree that follows the DTA or AS-T. These programs are designed to prepare students for specific majors. They are developed for majors that are offered at multiple baccalaureate institutions that have significant freshman and/or sophomore prerequisites, and serve many students.

There are 19 Major Related Programs (see Appendix A for a complete list). The majority, almost 90 percent, of students completing specialized transfer pathways for the major were in business, nursing, and elementary education.

Table 2 shows the year-to-year change in the number of students who completed Major Related Programs. These programs are advising pathways that fit within either a DTA or AS-T and therefore represent a sub-set of the totals in Table 1 above.

Table 2. Community College Students Completing Major Related Programs Transfer Pathways, 2011-12

MRP Pathway	2009-10	2011-12	Change 2010-2012
Business	1,169	1,146	-2%
Nursing	124	302	144%
Elementary Education	49	64	31%
Other MRP/Local Agreements*	172	188	9%
Total	1,514	1,700	12%

Source: Source: State Board for Community and Technical Colleges. (2012). SBCTC Academic Year Report 2011-12.

Successful Vertical Transfer

Overall transfer has grown and then receded over the past two years. In 2012, the total number of transfer students is approximately equal to that of 2010. In addition, a new category added in the past two years includes students admitted to applied bachelor's programs at the community and technical colleges. The number of successful transfers exceeds the number of transfer degree completers because many students transfer before completion of their associate degree requirements.

^{*}The Biology MRP approved in 2009 is the newest and had 41 graduates in 2011-12.

More than 19,000 students transferred credits from community and technical colleges to public and private baccalaureate programs in Washington in 2011-12.7 Of these, 13,033 students (68 percent) transferred to the public four-year institutions. Nearly 5,700 students (30 percent), transferred to private four-year institutions. This includes the addition of nearly 1,900 transfer students to Western Governors University in 2011-12.

This addition masks a decline in the number of transfer students to other independent institutions. Transfers from two-year colleges to Bachelor of Applied Science degree programs at the community and technical colleges continue to grow—more than tripling in the past two years with over 300 transfers in the 2011-12 academic year.

Table 3: Trend in Transfers and Transitions to Washington Baccalaureate Institutions Since 2011 Transfer Report

Sector	Class of 2009-10	Class of 2011-12	Change 2010-2012
Transfer to Public Baccalaureates ^{1,2}	12,971	13,033	0.5%
Transfer to Independent Institutions ³	5,875	5,687	-3.2%
Transfer into CTC Applied Bachelors ¹	100	311	211%
Total Transfers/Transitions	18,946	19,031	0.4%

¹ Publics include state and self-support transfers.

Source: Student Achievement Council Analysis of Data reported in the SBCTC Academic Year Report 2011-12. State Board for Community and Technical Colleges. (2012).

Newly available completion data for the public four-year institutions.

New data from the Council of Presidents Statewide Public Four-Year Dashboard⁸ allows for improved reporting on student progress and will inform transfer policy moving forward. Initial reports show that:

- 1. The percentage of transfer students who complete either a full- or part-time load within their first academic year grew from 62 percent in 2007-08 to 74 percent in 2010-11.
- 2. The three year graduation rate for DTA/AST transfer students who entered in 2007-08 was 70 percent and climbed to 78 percent four years after transfer.
- 3. Transfer students **without** the DTA/AST transfer degrees did not complete at the same rate. Sixty-two percent completed in three years and 69 percent completed within four years of transfer.⁹

² Running Start students transferring directly to the public baccalaureate institutions are included

³ Includes both non- and for-profit institutions. 2011 - 2012 is the first year of reporting for Western Governors University. Data does not include Walla Walla or DeVry Universities.

⁷ SBCTC changed how they reported transfer student information this year and included Running Start students with the public baccalaureate data. For this report, complete data was not yet available through the ERDC. SBCTC contacted the public baccalaureates for data and those providing information were included in their report on which this information is based.

⁸ http://www.ofm.wa.gov/hied/dashboard/index.html

⁹ Central Washington University data is not included at this time. Updates will be made to the information once the data is provided.

Development of New Transfer Degrees and Other Improvements in Transfer Efficiency

No new transfer agreements were developed over the past two years. However, substantial progress has been made in improving existing agreements, and work has begun on new Major Related Programs.

The following is a summary of activities and milestones affecting transfer policy over the past two years. These areas of improvement represent the efforts of thousands of faculty and staff from all sectors working together to create a dynamic system of transfer in Washington.

- 1. An updated process for revisions and changes to the statewide transfer associate degree agreements was adopted May 2011. A revised policy outlining the review process for changes to existing transfer agreement was adopted and deployed throughout the system.¹⁰
- 2. **Revisions to the Direct Transfer Agreement.** Changes to the Direct Transfer Agreement were made and others are currently under review by the participating institutions. The changes and revisions under consideration include:
 - a. An update of the communication requirement was made to reflect current practices across institutions and improve communication with students.
 - b. A new Quantitative and Symbolic Reasoning requirement (under review).
 - c. Elimination and/or clarification of several institution-specific provisos attached to the DTA (under review).
- 3. **Review of existing Major Related Pathways (MRP) completed.** The Joint Transfer Council and system stakeholders evaluated MRPs developed since 2003, and determined several were no longer being used by students.

The MRPs listed below will be eliminated effective fall 2014 because they had no graduates and limited enrollment over the past five years. This provides a two-year window to "teach-out" any remaining students currently enrolled in these programs. The MRPs that will be eliminated are:

- a. Associate in Biology Education
- b. Associate in Chemistry Education
- c. Associate in Earth Space Education
- d. Associate in General Science Education
- e. Associate in Physics Education

¹⁰ These processes are available at www.wsac.wa.gov/sites/default/files/TransferAgreementRevisions-Oct2011.pdf.

4. **Revisions to the Business DTA/MRP completed.** The Business DTA/MRP is the most popular Major Related Program. Improvements were made to better align the quantitative/symbolic reason and business law requirements in the MRP. For law, all sectors worked together to determine learning outcomes for business law courses. A commonly numbered course was developed and adopted by the community and technical college system. This course is accepted to satisfy the business law course requirement at baccalaureate institutions.

The quantitative/symbolic reasoning requirement was simplified, allowing more flexibility for students completing higher level math courses. The revised Business DTA/MRP went into effect July 2012.

- 5. **Development of a new Nursing pathway is underway.** The Pre-Nursing DTA/MRP has seen the greatest growth of all the MRPs. With impending Nursing shortages there is need to streamline the pathway for students moving from the Associate Degree in Nursing to Bachelor Nursing degrees programs. A work group was established and began meeting in 2012 to create an efficient pathway for Nurses. A revised policy is currently circulating through the system for comment.
- 6. Work group has been formed to revise the Elementary Education DTA/MRP. The Elementary Education MRP was established in 2005. Since that time curricular changes at universities have created a mismatch between two-year and four-year programs. A work group to address these issues was established late in 2012 and will have its first meeting in January 2013.
- 7. **Revisions to College Transfer Websites.** College transfer websites were updated to include more information for students interested in transfer. More source information for students and system users is now available on both the Council and State Board for Community and Technical College websites. 11 In addition, there is greater consistency and transparency in the transfer process through materials published in college documents, recruitment materials, and on web pages.
- Publication of "A Student Guide to Transfer in Washington." In fall 2011 a Student Guide to Transfer in Washington was developed by the Joint Transfer Council and was printed and posted on college websites. This guide describes twoyear degree transfer options, provides information in an easily accessible questionand-answer format, and offers links for further information.
- **Designation of the State Transfer Liaison.** A transfer liaison was designated on the Council staff to collect data and address student issues related to transfer. Due to continued concern by a number of transfer stakeholders that the system does not work well for some students, the Joint Transfer Council proposed a Transfer Liaison to collect data to address student issues across the system. This single point of contact was identified at the Washington Student Achievement Council in March 2011. www.wsac.wa.gov/sites/default/files/TransferLiaisonIssues-2011rev09Nov11.pdf

¹¹ http://www.wsac.wa.gov/ProgramAdministration/CreditTransfer and http://www.sbctc.ctc.edu/college/e_transfer.aspx.

- a. There were 26 contacts to the Transfer Liaison in 2011, with 16 related to transfer. All issues were resolved, with over 90 percent resolved to the student's satisfaction. In 2012 there were 17 contacts related to transfer, again with the vast majority resolved to the student's satisfaction. No systemic issues have been identified by the Transfer Liaison since the position began.
- b. In some cases students and parents were contacting the Transfer Liaison for concerns not related to transfer. Areas included residency for tuition purposes, student financial assistance, college admissions, and issues with instruction or administration at a college or university. For those concerns the Transfer liaison works with appropriate staff at the Council or the institutions to appropriately refer the student.
- 10. **Development of Statewide Public Four-Year Dashboard.** As noted earlier in this report, the Council of Presidents partnered in 2011 with the Department of Enterprise Services and the Office of Financial Management to develop a Statewide Public Four-Year Dashboard. An updated version became available December 3, 2012. This centralized dashboard displays a number of accountability measures, including graduation rates and the time it takes to complete a bachelor's degree for each institution and statewide.
- 11. **Development of "Washington 45."** In response to direction in Engrossed Second Substitute House Bill 1795 also known as "The Higher Education Opportunity Act" the community and technical colleges and the four-year institutions of higher education developed a list of academic courses that are equivalent to one-year of general education credits that will transfer to any other two- or four-year institution of higher education. This was completed and implemented in fall 2012.¹²
- 12. **Listing of Dual Credit policies and equivalencies.** Dual Credit/Dual enrollment programs allow students enrolled in high school to complete college credits that will apply towards degrees and certificates. Although technically not transfer programs, improvements in policy and information about these programs can lead to more successful transfer for students. For example, Advanced Placement programs enable students to take college-level courses while in high school.

The Office of the Superintendent of Public Instruction (OSPI) maintains a comprehensive Advanced Placement website. Tables showing the type of credit conferred by public institutions in Washington for AP examinations were added to the Council website in 2011, as was a list of dual credit webpages at each of the state's public and private colleges and universities.

¹² http://www.sbctc.ctc.edu/college/education/one_year_transfer_courses2.pdf

¹³ http://www-test.ospi.k12.wa.us/AdvancedPlacement/default.aspx

¹⁴ AP and other dual enrollment/dual credit information is available at www.k12.wa.us/SecondaryEducation/CareerCollegeReadiness/DualCredit/default.aspx or the Council site at www.wsac.wa.gov/PreparingForCollege/DualCreditResources

13. **Convene Prior Learning Assessment Work Group.** The Higher Education Opportunity Act also requires the Washington Student Achievement Council to convene the Prior Learning Assessment (PLA) Work Group to coordinate and implement seven goals described in statute for promoting the award of college credit for prior learning (RCW 28B.77.230). The work group has been meeting regularly for the past 18 months. Progress of the PLA work group is the addressed in a separate report.¹⁵

Next steps to improve student transfer and increase baccalaureate degree attainment

- 1. **Develop improved metrics to track progress and success of transfer students.** As indicated above, data systems are improving, and there is great potential for better systems to track student progress and evaluate transfer policy. Council staff will work with the Educational Research and Data Center (ERDC), State Board for Community and Technical Colleges (SBCTC), and the Council of Presidents, and other stakeholders to develop clear and accurate metrics to be used in subsequent reports.
- 2. **Continue assessment and review of Major Related Programs (MRPs).** Work with stakeholders to develop additional MRPs in majors where it makes sense to do so. For example, several community and technical colleges have indicated a need for an Associate of Fine Arts transfer degree because credit accumulation and time to degree in music and art programs exceed other programs. A work group is being formed in early 2013 to investigate options and potentially develop a transfer degree.
- 3. Begin discussions to **update proportionality agreements** between the community and technical college system and public baccalaureate institutions. 16
- 4. **Continue to collect system-wide information via the Transfer Liaison** to assess the effectiveness of transfer and recommend improvements if systemic issues arise.
- 5. **Coordinate with the Prior Learning Assessment Work Group**¹⁶ as they address issues related to transfer of credit earned through prior learning assessment.

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¹⁵ Available at www.wsac.wa.gov/PreparingForCollege/PriorLearningCredit.

¹⁶ The Proportionality agreements require public baccalaureate institutions to admit a certain percentage of community college transfer students as a proportion of its newly enrolled students. The purpose of this agreement was to ensure that students from the community and technical colleges wishing to transfer would be accommodated.

Conclusion

As the Council discussed in its first strategic action plan, Critical Crossroads: A Call for Action,

In 2009-10 Washington ranked first nationally in the efficiency of four-year degree production but Washington ranks 42nd of the fifty states in baccalaureate degree production. As part of the 10-Year Roadmap, the Council will investigate the development of measurable targets and milestone dates for meeting the challenge of increased demand for postsecondary education, including the greater participation of returning adults and transfer.¹⁷

Addressing these challenge areas and achieving the goal of increased student achievement will require continued collaboration and new levels of integration and focus within our educational system. We continue to move forward as an educational system with a comprehensive, integrated approach to transfer across all sectors for all students. We have made substantial progress, and although we are viewed nationally as a leader in transfer policy development, much work remains to be completed.

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¹⁷ For a further discussion of these and other educational roadblocks and opportunities identified by the Student Achievement Council, see Critical Crossroads: The 2012 Strategic Action Plan for Educational Attainment. Washington Student Achievement Council. December 2012. www.wsac.wa.gov/sites/default/files/SAP-CriticalCrossroads-2012.pdf.

Appendix A. Preliminary Outcome Measures

Students in some majors must carefully select their elective and general education courses to ensure they will be eligible to apply for the major after transferring to a baccalaureate institution. Colleges and universities have developed major-specific agreements (referred to as "major-related programs" or MRPs) for these majors to ensure community college students complete requirements in a manner parallel to university freshmen and sophomores.

These agreements have been developed under both the DTA and AS-T degree path. Five MRPs were eliminated effective 2014 because no student had graduated from them over the past five years. These MRPs are noted below.

MRP Pathways Based on the Direct Transfer Agreement (DTA)

- 1. Associate in Biology DTA/MRP. Preparation in upper-division Bachelor's programs in Biology. Approved Summer 2009.
- 2. Associate in Earth Space Secondary Education DTA/MRP. Preparation for secondary teaching in earth and space science. **Due for elimination effective Fall 2014.**
- 3. Associate in Construction Management DTA/MRP. Approved spring 2008.
- 4. Associate in Technology DTA/MRP. Preparation for CWU's Construction Management, Safety and Health Management, Industrial Technology & Technology Education or EWU's Design, Construction, Manufacturing, and Electronics Technology. Approved winter 2007.
- 5. Associate in Technology DTA/MRP. Preparation for CWU's industrial technology and EWU's technology majors. Implemented 2007.
- 6. Associate in Business DTA/MRP. Preparation for business and accounting bachelor's degree programs. Implemented in 2003, revised in 2006 and 2012. Effective July 1, 2012.
- 7. Associate in Pre-Nursing Science DTA/MRP to transfer into basic nursing programs. (not RN to BSN pathway, which is under development 2012-13). Implemented 2005.
- 8. Associate in Elementary Education DTA/MRP. Preparation for teacher certification programs. Implemented in 2005. Under review 2013.
- 9. Associate in Math Education DTA/MRP. Preparation for teacher certification programs in secondary math. Implemented 2003.

MRP Pathways Based on the Associate in Science (AS-T)

- Three Engineering Pathways REVISED 2008 Bioengineering and Chemical Engineering, Computer and Electrical Engineering, and Mechanical/ Civil/Aeronautical/Industrial/Materials Science Engineering AS-T/MRP. Preparation for engineering transfer. Implemented in 2005, Revised Summer 2008 effective Fall 2009.
- 2. Three Engineering Technology Pathways Electronics Engineering Tech, Computer Engineering Tech, and Mechanical Engineering Tech AS-T/MRP. Preparation for engineering technology transfer. Implemented 2007.
- 3. Four secondary science teacher pathways: Associate in Biology Education; Associate in Chemistry Education; Associate in General Science Education; and Associate in Physics Education AS-T/MRP. Preparation for teacher certification in secondary sciences. Implemented 2003. **Due for elimination effective Fall 2014.**