Social and Natural Sciences

Report

April 11, 2017

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Introduction

The Social and Natural Sciences Strategic Pathways team understands that our primary responsibility is to create options that will increase student success at the University of Alaska (UA). To that end, every option that we generated was tested as to whether it would have the likelihood of meeting this objective.

Team Charge, Scope and Goal, Members and Stakeholders

Charge

Weigh the options of pursuing collaborative opportunities including but not limited to: common course numbering; common catalogue; course sharing; and common curriculum committees.

Scope

UAA College of Arts and Sciences, UAS School of Arts and Sciences, UAF College of Liberal Arts (Social Sciences), UAF College of Natural Sciences and Mathematics.

Goal

Achieve better coordination and leveraging among the campuses to improve UA student success and potential cost savings.

Team Members

- Sine Anahita
- Susan Bell
- Brian Buma
- Sharon Chamard
- Chris Fallen
- Kellen Fisch
- Stacey Howdeshell
- Lyndea Kelleher
- Paul Layer
- Amy Lauren Lovecraft
- Steve Masterman
- Diane O'Brien
- John Petraitis
- Priscilla Schulte
- Sherry Tamone
- Dorn Van Dommelen
- Cheryl Wilga

Key Stakeholders

- Students
- Faculty
- Staff
- Executive leadership
- Community
- Employers
- Parents
- Alumni
- Legislators
- Native corporations
- Tribal organizations
- K-12 system
- External funders
- NWCCU and other accreditors
- Potential students from outside Alaska (international and domestic)
- Each university
- Local governments

Process Overview

The Social and Natural Sciences Team is one of seven teams in Phase 3 of Strategic Pathways. Phase 3 began in January 2017 when the teams met for the first time. During that first meeting, Session 1, there was a thorough orientation to the overall effort, and the charge, scope, and goal were refined. Most teams also identified the first iteration of potential options. In the weeks between Session 1 and the second meeting, Session 2, the Social and Natural Sciences Team continued to define the options with weekly teleconferences and virtual collaboration. The pros and cons for each option were developed in Session 2 in February. Since then, the Social and Natural Sciences Team has been continually refining the options, opportunities, pros and cons and writing them into this report. The report served as the main source of information for the presentations that will be presented to the Summit Team on April 11th.

Team Introduction

There are seventeen members of the Social and Natural Sciences team, in addition to Doug Johnson, our professional facilitator. Here, we briefly introduce ourselves.

- Sine Anahita is an Associate Professor in Sociology at the University of Alaska Fairbanks. Her teaching, research, and service work focuses on social inequalities. She has been at UAF for 14 years and has served as department chair, faculty senator, union representative, and advocate for students, faculty, and staff.
- Susan Bell is a Principal at the McDowell Group. She manages a wide array of McDowell Group projects including feasibility studies for public and private investments, community development, economic impact analyses, and public opinion research.
- Brian Buma is an Assistant Professor of Forest Ecology at UAS. He has been at UAS since 2013, and currently serves as the chair of the Research and Creative Activities committee.
- Sharon Chamard is an Associate Professor of Justice at UAA. She has been at UAA for 14 years and has served for several years on the Faculty Senate, including as 2nd Vice President and currently as 1st Vice President (President-Elect).
- Chris Fallen is an Assistant Research Professor in the Space Physics group of the University of Alaska Fairbanks Geophysical Institute. He has been at UAF for 13 years, first as a doctoral student and then the previous 7 years as research faculty. Chris Fallen has served on the UAF Faculty Senate for 6 years and is the current President-Elect.
- Kellen Fisch is a student at the University of Alaska Anchorage.
- Stacey Howdeshell has been with student service departments at UAF for over 25 years and is currently a Generalist Advisor/Information Specialist in the UAF Academic Advising Center. She has served on curriculum committees in an advisory capacity and has been a member of Staff Council for the last two years.
- Doug Johnson is the CEO of Professional Growth Systems and acted as the team's facilitator through the Strategic Pathway review process
- Lyndea Kelleher is a student at the University of Alaska Anchorage
- Paul Layer has been at UAF since 1989. He is Dean of the College of Natural Science and Mathematics and Professor of Geophysics in the Geophysical Institute and Department of Geoscience He also served as Department Chair and President of the UAF Faculty Senate.
- Amy Lauren Lovecraft, PhD, is Professor of Political Science and Department Chair at the University of Alaska Fairbanks where she has served since 2001.
- Steve Masterman is State Geologist and Director of the State of Alaska's Division of Geological & Geophysical Surveys.
- Diane O'Brien, PhD, is Professor of Biology and Wildlife at the University of Alaska Fairbanks. She has been at UAF since 2004.

Team Introduction, continued

- John Petraitis has been at UAA for 25 years as Psychology Department faculty, department chair, as Faculty Senate President, as Faculty Alliance chair and, currently as Associate Dean of Social Sciences in the College of Arts and Sciences.
- Priscilla Schulte is the UAS Ketchikan Campus Director.
- Sherry Tamone is a Professor of Biology at the University of Alaska Southeast. She is a crustacean physiologist and has been at UAS for close to 18 years. She is particularly involved in undergraduate teaching and research in Marine Biology.
- Dorn Van Dommelen is a Professor of Geography at UAA. This is his 23rd year at UAA, during which he has worked as a department chair for ten years and been heavily involved in curriculum development, outcomes assessment, and high impact practices.
- Cheryl Wilga is a Professor and Director of Biological Sciences at UAA for the last 1.5 years. Prior to that she was a Professor for 16 years and Chair for 2 years at the University of Rhode Island. She is an UAA alum of Kodiak College. She is a biomechanist, is heavily involved in broadening participation in science, and is an ANSEP faculty mentor.

Option 1 – Common Course Numbering

Narrative Description

This option would create common course numbering across the three Universities for courses that are shared in common among the campuses. In particular, common numbering for general education requirements (GERs) can support students when transferring between campuses or taking distance classes.

Key Change Elements

- Program/Offering Changes
  - Social Science GER Committee working on 3 common learning objectives: course description, pre-requisites (pre-req.), title (Math, English, Dev. Ed have done this)
  - Science is currently discussing
- Staffing Changes
  - Will need additional resources (person hours of staff member) to complete the renumbering
  - Once done, could potentially save time in valuing course equivalency
- Use of Facilities/Technology
  - Coding with Banner needs standard
  - UA online adjustments
- Access for Students
  - Avoids confusion for the student, makes it clearer for course equivalency
- Administration
  - This will have implications for faculty workloads
- Front-End Investment
  - This will take considerable resources to get this done (financial and time)
- Community (external) Engagement
  - Could increase perception of enhanced cooperation
  - Would engender public support as the University is seen as trying to improve
- Faculty
  - Temporary increased workload
  - Could limit the way a course could be taught

Pros and Cons

Pros	Cons
▶ Already started for many GERs	▶ Minimal positive impact on student success for the amount of time, energy, and money that will be spent
▶ Could improve consistency of Student Learning Outcomes in common numbered courses	▶ High upfront cost, money, and time
▶ Could ease transfer for students from other universities outside Alaska	▶ Time and energy to coordinate and maintain this effort
▶ Reduced student frustration	▶ Does not work well for upper-division courses, limits ability to structure upper level courses to serve different program objectives
▶ Community and alumni support may increase with evidence of coordination	▶ May complicate student pre-req and student placement
	▶ Could require BOR policy change
	▶ Pressure to reduce course expectations to lowest common denominator
	▶ May limit academic freedom
	▶ Technological challenges with existing IT systems in changing course numbers

Further Analysis Needed

▶ Empirical data for the need for this option needs to be provided

Option 2 – Common Catalogue

Narrative Description

A common catalogue could entail a range of options. On the one hand, a complete common catalogue could contain all of the information about each univeristy, on the other hand it could simply represent a portal where students and others could access the catalogues of each university.

Key Change Elements

- ▶ Program/Offering Changes
  - Will not change program or course offerings
- ▶ Staffing Changes
  - Creation of common platform will increase staff workloads
- ▶ Use of Facilities/Technology
  - Coordination of CourseLeaf and building of the catalogue
- ▶ Access for Students
  - Must be user friendly to enhance student access
- ▶ Administration
  - This will have implications on faculty workloads, requires development of common course numbers
- ▶ Front-End Investment
  - Statewide investment of platforms and software
  - Requires informatics expertise
- ▶ Community (external) Engagement
  - Could increase perception of enhanced cooperation
  - Would engender public support as the University is seen to improve
- ▶ Faculty
  - Collaboration and coordination with other departments

Option 2 continued – Common Catalogue

Pros and Cons

Pros	Cons
▶ Single location for university offerings (common portal), though each would be accessed through its own link	▶ Scope and scale not defined
▶ May increase ease of access to prospective students	▶ Redundant with existing resources (Degreeworks, UA Online, Course Finder)
	▶ May create confusion given three separate universities and distinct degree programs
	▶ Minimal positive impact on student success for the amount of time, energy, and money that will be spent

Further Analysis Needed

▶ A lot more student input would be needed to demonstrate a need for a common catalog; the students on this team stated that they did not believe that a common catalogue would be beneficial

▶ The utility of a physical university catalogue for students may be obsolete due to changing technology, e.g., digital catalogues paired with search engines are now more commonly utilized by students and faculty alike at UA. Thus, existing systems might be able to be modified to fulfill the perceived need for a common catalog

▶ Scope and scale for this option are not defined: e.g., would a common catalogue include only a list of program and course offerings, or would it also include student conduct policies application process, registration dates, etc. that are currently included in university catalogues?

Option 3 – Course Sharing

Narrative Description

Faculty teach a course at one location, and students across the state who are registered students at a different UNIVERSITY could take the course using a distance interface. Courses would seamlessly transfer across Universities. This should result in more resources available to teach a greater variety of courses.

Key Change Elements

- Program/Offering Changes
  - Leverage faculty expertise across campuses by cross-listing courses where appropriate across university
  - Where appropriate, would require coordination and sharing of information among programs for distance offerings to avoid duplication
- Staffing Changes
  - Requires coordination with other course-schedulers up to 11 months in advance
- Use of Facilities/Technology
  - Many more resources put into IT, training, and broadband infrastructure; would need significant investment in classroom facilities for distance education
- Access for Students
  - Increased opportunity for enrollment; reduced face-to-face contact with faculty; could free faculty for additional course offerings
- Administration
  - Requires coordination with other administrators across different universities re: workload implications; who gets the tuition from cross-listed courses across universities ; deciding how one should teach a course if potential faculty meet different standards
- Front-End Investment
  - Significant IT investments up front
- Community (external) Engagement
  - Community may appreciate this example of improved coordination and apparent efficiency
- Faculty
  - Different standards for faculty at different locations (i.e., main campuses vs. community campuses); more work done by chairs

Option 3 continued – Course Sharing

Pros and Cons

Pros	Cons
▶ Increases course options for students	▶ Potentially creates intercampus competition for students
▶ Could help retain and graduate students	▶ Requires significant collaboration across campuses at the program and college level
▶ Could preserve small and specialized program offerings	▶ May increase pressure to put more courses online, even when inappropriate
▶ Could increase program quality and diversity	▶ Lab-based courses that require in-person instruction would be challenging to offer by distance
▶ Maximizes available faculty resources	▶ Significant up-front IT investment time and funds
▶ Could improve collaboration across universities, fostering support from communities, the Alaska legislature, the business community, and other key stakeholders	▶ Workload, fiscal, facility, and course scheduling required
▶ Improves recruitment in multiple ways	▶ Could encourage non-replacement of departing faculty which will negatively impact many other essential activities e.g. advising, mentoring, outreach, research, and publishing,...
▶ Potentially could save money by sharing faculty resources	
▶ Promotes innovation in new ways to offer courses	
▶ Expands faculty flexibility	
▶ Builds on existing experiences	

Further Analysis Needed

▶ Where is the funding going to come from to support this option?
▶ Structural changes will be required at the administrative level.

Option 4 – Common Curriculum Committees

Narrative Description

This would require all universities to centralize to a single curriculum committee. Given that these committees are tied to accreditation, this would require common accreditation or relinquishing control on a central facet of accreditation. It would increase the similarity of the programs across universities. This is likely to reduce the diversity and specialization that can be offered, reduce student choice, and result in less faculty oversight over curriculum at any given university.

Key Change Elements

- Program/Offering Changes
  - Would require common accreditation across all universities? Unclear if it violates accreditation; individual universities would give up some control over their own classes; may result in homogenization between programs
  - Alternatively, would involve a CC that is reviewing courses on a non-local course, or with only one or two representatives from a given university
- Staffing Changes
  - No change - could it be less? Unclear as majority faculty committee
- Use of Facilities/Technology
  - Would require meetings in common - either travel or IT facilitated virtual meetings
- Access for Students
  - Potentially fewer curricular choices
- Administration
  - Substantial: major impacts on coordination between universities, difficult to clearly define the role of the faculty and university in accreditation
- Front-End Investment
  - Substantial: see previous study on accreditation (if this does not impact accreditation, less of an impact)
- Community (external) Engagement
  - Would depend on the audience, but would likely be seen as a positive due to less committees, but loss of local identity could be a negative
- Faculty
  - Statewide coordination in programs, less individualized programs possible

Option 4 continued – Common Curriculum Committees

Pros and Cons

Pros	Cons
▶ None	▶ Less responsive to industry, student, and workforce needs
	▶ Homogenization of programs limits student choice
	▶ Would delay course offerings and new course offerings
	▶ Delay of offerings delays matriculation and graduation
	▶ Could require common accreditation
	▶ Adds layer of bureaucracy
	▶ UNIVERSITY specific faculty governance would lose control of curriculum
	▶ Promotes friction among universities
	▶ Could discourage innovation
	▶ Increased cost
	▶ Requires significant faculty workload adjustments

Further Analysis Needed

▶ Communication at the disciplinary level about curricula would be beneficial but could be achieved more effectively through other means

Option 5 – Faculty and Student Intrastate Mobility

Narrative Description

Students would be able to go to one of the other UA Universities, including community campuses, for a Study Alaska semester and easily transfer credits. This would be set up as a formal program (like Study Abroad) that focuses on completion of student degree plans and provides research opportunities with faculty at the host institution. Faculty can explore options for sharing professional expertise in teaching, research, and service from one university with another universities, with the possibility of sharing some workload units between the universities. The combination of these would provide diverse and accessible opportunities for student-faculty mentorship and research. Such arrangements would involve careful advanced planning among the parties who are involved.

Key Change Elements

- ▶ Program/Offering Changes
  - Potentially more offerings from faculty from other universities in their specialties
- ▶ Staffing Changes
  - More resources for processing course transfers; need to develop infrastructure for students similar to that for Study Abroad (applications, course review for transferability, etc.)
- ▶ Use of Facilities/Technology
  - No change
  - Might require facilities and technology that support distance delivery among campuses
- ▶ Access for Students
  Students can move physically from place-to-place to complete programs; exposure to another UA university and offerings there; greater need for help finding short-term housing; need to review policies about transferability of scholarships, etc.; increased opportunities for internships
- ▶ Administration
  - More processing of faculty workloads and contracts involving multi-university work; need to develop MOAs about cost sharing, etc.
- ▶ Front-End Investment
  - More resources for coordination
- ▶ Community (external) Engagement
  - Increased collaboration with community and industry; development of more short-term "Executive" type courses; increased opportunities for internships in the community
- ▶ Faculty
  - Potential to generate enthusiasm among faculty

Option 5 continued – Faculty and Student Intrastate Mobility

Pros and Cons

Pros

- Allows students to take courses in a specialty not offered on their campus
- A formal system would allow credits to easily transfer
- Would especially benefit rural and Indigenous students and those seeking to study in rural and primarily Indigenous areas of the state
- Would increase enrollment for highly specialized courses
- Increases opportunities for undergraduate research
- Potentially enhanced recruitment and retention through flexibility of degree completion
- Increases intercampus faculty collaboration
- Increases opportunities for faculty research
- Potentially enhanced recruitment of faculty through flexibility of career options
- Leverages faculty talent
- Alternative option for faculty development
- Enhances intercultural development system wide

Cons

- Housing for students at the host institution may be challenging
- Upfront cost for program establishment not known
- Faculty and administrative time to set this up
- Potential cost of finding substitute for faculty while elsewhere

Further Analysis Needed

- Research needed to look at past program that facilitated faculty to spend time in rural Alaska
- Can this be coordinated with current study abroad programs?

Option 6 – Share High Impact Practices Across Universities

Narrative Description

Two, non-exclusive options:

1) Build a cohesive outreach network across universities for students and faculty that explains and advertises the opportunities to participate in high impact practices (see bulleted list below for some examples), and shares successes and challenges among universities. For example, this could take the form of a portal website, undergrad research office, or a UA-wide honors program.

2) Build a cohort model (e.g., ANSEP) with incoming natural and social science students. Designate space, faculty workload hours for service or teaching, introductory classes for the cohort, etc. Structured student communities at the beginning of the student experience. Sharing best practices across universities.

The teaching and learning practices below have been tested and have been shown to be beneficial for college students from many backgrounds, especially historically underserved students, who often do not have equitable access to high-impact learning. These practices take many different forms, depending on learner characteristics and on institutional priorities and contexts. For example, but not limited to:

- Capstone courses and projects
- Collaborative assignments and projects
- Common intellectual experiences, e.g. common book projects
- Diversity and learning about global issues
- First-year experiences, e.g. first year seminars
- Internships and practicums
- Learning communities to build student community
- Service learning, a.k.a. community-based learning
- Undergraduate research, e.g. small competitive grants to students and faculty mentors
- Writing-intensive courses or writing across the curriculum projects

(adapted from https://www.aacu.org/resources/high-impact-practices).

Some of these practices have been tried at the different universities already, with varying levels of success. Coordination among universities in these practices would allow the UA system to benefit from, and build on, shared experience and expertise.

Option 6 continued – Share High Impact Practices Across Universities

Key Change Elements

▶ Program/Offering Changes
- Potential changes to established programs to broaden access

▶ Staffing Changes
- Communication staff may be needed

▶ Use of Facilities/Technology
- Could use IT to mirror products on individual websites. Communication opportunities.
- Designated space for the student communities

▶ Access for Students
- Improve across the board, create learning communities

▶ Administration
- Increased investment in coordination or expansion, high payoff. Support for faculty time for establishment of cohorts (ANSEP like model).

▶ Front-End Investment
- Low for the coordination/communication of opportunities, moderate for cohort model.

▶ Community (external) Engagement
- Positive, potential additional funds with successful model (URECA)

▶ Faculty
- Impact for workload (service/teaching)

Option 6 continued – Share High Impact Practices Across Universities

Pros and Cons

Pros

- There is evidence this will improve student success
- Inspires students, supports life choices, opens doors of opportunity
- Builds cohorts and sense of community which has been shown to improve student success
- Builds student faculty relationships that strengthens the university experience
- Enhances intercultural experiences for students
- Improved success of first generation and students from underrepresented groups
- High quality honors program raises the universities' profiles and credibility, which will recruit high achieving students in Alaska
- Stimulates interest in attending college in Alaska through high school outreach programs
- Greater engagement with communities and employers
- Fundraising opportunities
- Satisfied students give back to the university
- Potential to increase grant success
- Generally embraced by faculty and staff
- Supports community partner engaged research

Cons

- Cost
- Time, effort and commitment by faculty and staff
- Significant faculty development will be needed
- Potential faculty resistance
- Some practices may require curricular changes

Further Analysis Needed

- How to incentivize high impact practices during the contemporary period of recession and budget crunch

Option 7 – Expand and Enhance the Advising Process

Narrative Description

Although each university has established advising practices, holistically expand the advising process so that students can access general advising, advising specific to their major, and advising on potential careers and other life opportunities such as volunteer work in their community. Establish a recruitment-to-graduation advising model so that faculty and/or advising specialists are there to assist students at each decision. Ensure that special student populations, e.g., veterans, students with disabilities, first generation, and students from diverse backgrounds have access to comprehensive advising that fits their needs.

Key Change Elements

▶ Program/Offering Changes
  - Mandatory advising and mandatory placement each semester, new students in late spring or summer
  - Completion of prerequisites courses prior to admittance to major
  - General advising by professional staff prior to major admittance, then major advising by faculty and professional staff
  - Modeling National Academic Advising Association (NACADA) best practices where appropriate (https://www.nacada.ksu.edu/About-Us/Vision-and-Mission.aspx)
▶ Staffing Changes
  - Increased faculty involvement and professional advisors in advising students
  - Confirm staff for undeclared/pre-major students
▶ Use of Facilities/Technology
  - Potential advising day(s) during summer
  - Computer stations for enrollment - if infrastructure not currently in place
  - Technology/expertise in constructing shared resource information (website) as well as creation/generation of statistical reports to track success
▶ Access for Students
  - Students will have additional options for advising and assistance with course selection and major exploration
  - Current test scores will improve correct placement of students into core/general education classes
  - Access/use will lead to greater academic success, retention and increased enrollment/student satisfaction in chosen major
▶ Administration
  - Director or Chair support, workload changes for some faculty and staff

Option 7 continued – Expand and Enhance the Advising Process

Key Change Elements, continued

- ▶ Front-End Investment
  - Banner coding for students as undeclared until completion of major requirements, then coding in major
  - Investment of additional time for staff/faculty advisors to transition to new process
  - Maybe some time for IT infrastructure
- ▶ Community (external) Engagement
  - A coordinated advertising campaign will need to be developed to effectively communicate with stakeholders and faculty about improvement in our process
- ▶ Faculty
  - Workload credit for faculty advisors, academic advisor training for faculty
  - Better prepared and engaged majors in classes, perhaps with greater commitment.

Pros and Cons

Pros

▶ Minimize problems associated with the transfer of classes since faculty/staff advising can evaluate course content/learning outcomes which may not be reflected in course title

▶ Regular, meaningful contact and sharing of tools/resources available to students can remove obstacles to success

▶ Increased student success in retention and completion rate for both traditional first year students as well as non-traditional first year students

▶ Empowers students' ability to tailor education to life and career goals

▶ Linking students more directly to workforce opportunities

▶ Comprehensive advising and relationship building encourages student adaptability

▶ Pre-majors working with general advisors can meet all the college/major requirements prior to admission to major

▶ Graduating in a shorter time frame may decrease student debt

▶ Collaboration/coordination with other universities to build online learning resources

▶ Increased employer confidence in student capabilities

▶ Facilitates cost effective way to support student success relative to options 1-4

Cons

▶ Potential duplication of effort

▶ Requires commitment to address gaps and inconsistencies in current advising practice

Further Analysis Needed

▶ How to strengthen/increase advising information available to students online/app, DegreeWorks, Schedule Planner, other similar tools? How can we coordinate training of how to use the tools?

- How do we create baseline of information so faculty student relationship can go beyond what can be found online?

Other Opportunities for Change

► Develop collaborative opportunities with our stakeholders. For example, more internships could be developed across our partners. If stakeholders could volunteer more mentoring, interning, and service-learning opportunities faculty and students could access a wider range of opportunities to connect university programs to the economies in the state.

► Focus on getting more students into the UA system. One idea we discussed was the creation of a rigorous interdisciplinary Honors Program of the "college within a college" model that would demonstrate the expertise of UA to attract more students from Outside and convince more of our brightest Alaskans to stay in the state.

► Often, exciting opportunities for collaboration are lost during leadership changes; we need to find a way to keep programmatic collaborations alive through frequent leadership transitions that may be disruptive to student, staff, faculty, and administrative understandings of core missions.

► Consider adding Tourism as program. This is an example of a program that can benefit from expertise across Universities and leverage the interdisciplinary skills many faculty and programs at UA have. Reduce competition and enhance coordination between distance learning initiatives.

Share library resources across the UA system, e.g., the highly successful UAA-APU Consortium model has reduced costs and expanded access to library materials. *We have not had a directive to explore all possible avenues for significant structural change to the UA system that the Board of Regents may be considering. At the end of our meeting we want to emphasize any major changes must be broadly reviewed for advantages and disadvantages.*

Addendums

- *High-Impact Practices*, Association of American Colleges and Universities , https://www.aacu.org/resources/high-impact-practices, accessed March 7, 2017.

- *NACADA About Us; NACADA Mission and Vision*, https://www.nacada.ksu.edu/About-Us/Vision-and-Mission.aspx, accessed March 23, 2017.

- Staff Advising
http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Implications-of-advising-personnel-of-undergraduates-2011-National-Survey.aspx

- Faculty Advising
http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Implications-for-faculty-advising-2011-National-Survey.aspx

- Campus Collaboration
http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Campus-Collaboration-Index.aspx

- Academic Support
http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Academic-Support-Index.aspx

- Article "Helping Students Help Themselves: Advising as Empowerment"
http://www.nacada.ksu.edu/Portals/0/ePub/documents/34-3.pdf

- Careers on ONET.org
https://www.onetonline.org/

- Technology in Advising
http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Implications-for-use-of-technology-in-advising-2011-National-Survey.aspxhttp://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Implications-for-use-of-technology-in-advising-2011-National-Survey.aspx

- Graduating on time can decrease student debt
http://www.alaska.edu/stayontrack/take-15-credits/

- Learning Communities
http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Learning-Communities-Resource-Links.aspx