Ohio | Department of
Higher Education

Mike DeWine, Governor
Randy Gardner, Chancellor

The Ohio Articulation and Transfer Network (OATN)
Statewide Computer Science & Information Technology Cluster Faculty Panel Meeting
Dublin Branch – Columbus Metropolitan Public Library
75 N. High Street
Monday, October 28, 2019
10:00 a.m. – 2:00 p.m.

Present: Jong Kwan "Jake" Lee, Randall Bishop, Deng Cao, Wenbing Zhao, Patricia Opong, Charles Dull, Nghi Dao, Levi Smith, Tasha Penwell, L. Gwenn Volkert, Jennifer Crissman, Sue Baker, David Woods, Tony Hill, David Juedes, Dovel Myers, Jeff Sommer, Kyle Jones, Paul Sivilotti, Enoch Damson, Gursel Serpen, Hazem Said, Karen Meyer

ODHE/OATN Staff: Candice Grant, Holly Hall, and Nikki Wearly

I. **Welcome & Introductions**

II. **Meeting Objectives**
   • Gain an understanding of the Ohio Guaranteed Transfer Pathways (OGTP) Initiative
   • Gain an understanding of the process, essential elements, and your role in the
     development of clear pathways
   • Begin development of the OGTP

III. **Overview of OGTP**

   Dr. Candice Grant reviewed the Ohio Guaranteed Transfer Pathways (OGTP) and its purpose. She explained the legislative code mandating that by December 1, 2018, the Ohio Department of Higher Education (ODHE) update and implement policies to ensure that an associate degree earned at any public two-year institution in the state shall transfer and be applied to a bachelor's degree in an equivalent field at a four-year institution without unnecessary duplication of courses or institutional barriers. The Ohio Articulation and Transfer Network (OATN) is using research-based methods outlined by the Aspen Institute to implement this policy. The Aspen Institute has outlined important elements of effective transfer, including clear pathways with aligned high quality of instruction. The pathways are organized into clusters, and start with faculty-driven development (through focus groups, panel meetings, and on-campus discussions), then move to the endorsement phase (survey of CAOs, collaborative resolution, and then Chancellor approval), and finally to the implementation phase (institutional template submission, institutional resolution, final approval, and communication). Final approved templates can be found on the ODHE website.

   Dr. Grant then provided a background of the Ohio Mathematics Initiative (OMI), which was created to determine how to best align mathematics courses with the programs in which they are included. Doing so will ultimately help students be more prepared for their careers after graduation and will also help eliminate one of the largest barriers to

transfer wherein students struggle to complete mathematics requirements prescribed for their major.

IV.   OGTP & CTAGs

Ms. Nikki Wearly presented information on the existing Career-Technical Assurance Guides (CTAGs) in the areas of Cybersecurity, Programming, and Information Technology. She circulated spreadsheets that show the courses within each area, along with the corresponding course number at each public two-year and four-year institution (if one is offered) and the CTAG-approval status of that course. Each course within a CTAG has a corresponding Career-Technical Articulation Number (CTAN) which identifies a set of learning outcomes that the career-technical secondary programs and the post-secondary institutions must match in order to have their course be CTAG-approved. These CTANs are important to keep in mind as the panel works to identify equivalencies in these areas.

V.   Discussion on Proposed Pathways in IT, IS, & CS

Mr. Enoch Damson opened the discussion with a recap of the previous focus group meeting during which the participants proposed focusing on the development of three pathways in particular: Information Technology (IT), Information Systems (IS), and Computer Science (CS). Focus group members also discussed that the learning outcomes and standards have been outlined by various accrediting agencies. The group ended the meeting with plans to shape definitions for CS, IS, and IT areas and to identify similar courses between institutions.

Mr. Damson conducted the research on these courses at the varying public institutions and determined that the math trajectories for these programs are very similar between programs. All three pathways required some level of background knowledge of information systems and programming. In CS, there is a core of shared courses including Computer Science I and II (or Data Structures), Introduction to Computer Science, and Discrete Mathematics. In IT, the core courses were Programming, Database Management, Networking, Web Development, HCI and Systems Administration. ABET accreditation requirements also ask that all programs have a Security component. Within IS, a number of Business TAG courses would be applicable, such as Business Statistics, Accounting, Marketing, and Management) along with courses such as Introduction to Programming, Systems Analysis and Design, and Database Management.

The group briefly considered how to define the pathways in a way that would be clear to students and advisors. The difficulty with this is the variances in definitions across the state and within varying accrediting agencies; however, Dr. Gwenn Volkert redirected the conversation to the courses rather than the semantics. Dr. Volkert voiced that the definitions and titles of each program are irrelevant to post-graduation hiring for students. She stated that one of the purposes of this sort of collaboration is to gain information to

bring back to their institutions and educate the students and faculty. She said that all too often students receive an extraneous associate degree because they change their interests or don't understand the divide between the programs. The pathway definition is secondary to the learning outcomes included within which is the goal for the group.

The group began their discussion about pathway development with the math portion of each pathway and determined that for CS it may be a good idea to include Calculus I & II and Discrete Mathematics. There was some disagreement about whether or not to include Calculus II since it is not offered at all two year institutions. The group ultimately determined it should be included, but not all community colleges have to offer the course as it can be taken following transfer. There was also some concern because Discrete Mathematics is not currently a TAG or OTM course. It was decided that both Discrete Mathematics and Calculus I should be included in the Computer Sciences pathway, with a caveat that there are still some issues to work out. Some panel members also pushed for a statistics course to be added into this pathway. Calculus I was listed as the required math course, with Calculus II, Discrete Math, and Linear Algebra being listed as 'other requirements.'

VI. Lunch

VII. Pathway Development Work, continued

Within the Computer Science pathway, the group included First Writing (TME001) course with a recommendation to take either Public Speaking (OCM013), Oral Communication (OCM013) or Second Writing (TME002). They also inserted a recommended course of Introduction to Ethics or Introduction to Logic in the additional OTM credit section. Dr. Grant noted that many previous cluster panels begin with the institutional requirements that are the strictest and devise which courses to include based upon that. Therefore, the group decided to include the General Chemistry I or Physics I (calculus based) as the natural sciences requirement. They added a note to the bottom of the pathway to specify that Ohio State University requires physics, University of Cincinnati requires chemistry, and some other institutions require both along with biology. Introduction to Computer Science, Computer Science I and II or Data Structures, and Discrete Mathematics were added on a tentative basis to the 'Pre-Major/Beginning Major' section.

After some further discussion between members which highlighted the differences between the requirements and material within the varying CS courses, the group determined that further development of TAG courses is needed. There is a lack of cohesiveness between the courses at each institution, making transfer policy difficult to write and utilize. Dr. Grant stated that she will begin to ask for nominations to assist in developing learning outcomes for TAGs for CS, IT, and IS through a writing panel. This process will likely take a substantial period of time; however, the group is unable to proceed with the pathway development without TAGs for the courses.

Ms. Wearly recommended that the group review the CTAGs in the IT area because they provide definitions for these programs and offered a starting point on learning outcomes for each course. Dr. Volkert suggested that the group distribute a survey to each institution asking them to outline learning outcomes for the first three courses in the major. Dr. Grant stated that she will assist the panel in development of a writing panel for the TAGs, as well as help to design a survey to assess which courses should be created.

For IS, the group decided to include Business Calculus (or Calculus I) as the mathematics course. For Social and Behavioral Sciences, the panel opted to include microeconomics, and macroeconomics as an additional credit option. The 'Pre-Major/Beginning Major' courses would potentially include Business Statistics (or Introduction to Statistics), Financial Accounting, Managerial Accounting, Marketing, Management, Introduction to Programming, Systems Analysis & Design, and Database Management.

The panel moved onto IT in an attempt to get a preliminary idea of which courses would be most pertinent to the degree. They once again opted to include Public Speaking (OCM013), Oral Communication, or a Second Writing as an additional required credit. For the mathematics course, Introduction to Statistics was decided to be the requirement. They added a caveat in the notes that University of Cincinnati requires Pre-Calculus, Discrete Mathematics, and Interpersonal Communication as well. Potential 'Pre-Major/Beginning Major' courses might include Networking, Security, Programming, System Administration, Database Management, Web Development, and Human-Computer Interaction (HCI). Mr. Damson asked that the panel members consider and reach out with suggestions for definitions of the three pathways. Currently, a consensus was reached that the accreditation agency definition may be the best to use with the potential for future tweaks.

VIII.   For the Good of the Order
Dr. Grant thanked the attendees for their time and mentioned that she will be reaching out with further details on the writing panel and survey.