INSTITUTE FOR INNOVATION AND TECHNOLOGY MANAGEMENT

TED ROGERS SCHOOL OF MANAGMENT

Online Credit Transfer

An Analysis of North American Institutional Policies for Credit Transfer for Online Learning Programs

TED ROGERS SCHOOL OF MANAGEMENT

Institute for Innovation & Technology Management

Executive Summary

Goal

To explain new multi-path, post secondary education (PSE) career strategies facilitated by emerging Internet based education resources available in North America and Globally

OBJECTIVE

To analyze and map emerging institutional policies and practices for credit transfer from non-traditional PSE and online courses to traditional universities

SCOPE

More than 2500 online sources including universities, digital PSE platforms, PSE Accreditation bodies, Alternative accreditation bodies, institutes and industry certification boards

LIMITATIONS

Limited data on Canadian universities credit transfer policies from MOOCS and other non-traditional PSE service providers.

KEY FINDINGS

Post-secondary education (PSE) is no longer the sole domain of colleges and universities. Digital innovation is rapidly expanding PSE service delivery to anyone with a digital device and reliable internet connection.

Digital PSE services now enable learners to pursue alternative lower cost paths to a degree from highly ranked universities anywhere in the world by aggregating courses and stacking micro-credentials.

Digital PSE platforms using Open Badge Infrastructure (OBI) now collaborate with alternative PSE accreditation services such as College Board®, American Council on Education (ACE) and National College Credit Recommendation Service (NCCRS) enabling learners to get credit for their non-traditional studies at more than 2000 universities.

KEY INNOVATIONS

Open Digital Badging is an emerging practice for evaluating and authenticating learning outcomes from non-traditional courses, enabling digital PSE service providers to facilitate PSE credit evaluation and recommendation.

Universities are adopting OBI for validating and authenticating PSE learner competences in medicine, nursing, engineering, pharmacy and other fields.

OBI enables collaborations (ACE and Credly) for evaluation of PSE credits earned from non-traditional paths and the generation of digital ACE college transcripts accepted by more than 2000 universities.

AI machine learning tools are being deployed by platforms such as Coursera® to help PSE learners match relevant courses offered on the platform with courses in their university's catalogue. AI machine learning tools are being deployed for matching course content for credit evaluation and transfer.

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About Us

Our Approach is in practice-oriented research and innovation that assists firms in maintaining agility and competitiveness. Our preferred approach is multi-disciplinary collaborative research based on forming strategic, symmetric, and deep relationships with business and public enterprises.

The strategic mission of Institute for Innovation and Technology Management (IITM) is to find innovative solutions to real-world technology management problems. We understand that these problems are interdisciplinary and, as such, any solution must go beyond traditional views of organization and technology. Our interest is in practice-oriented research and innovation that assists firms in maintaining agility and competitiveness. Our preferred approach is multi-disciplinary collaborative research based on forming strategic, symmetric, and deep relationships with business and public enterprises. Presently our research focuses on three broad themes:

1. Information technology management and organizational learning;
2. Developing organizational dynamic design capabilities; and
3. Information technologies and economic growth.

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About the Authors

Ojelanki Ngwenyama, PH.D.
Director
ojelanki@ryerson.ca

Ojelanki Ngwenyama is currently Professor of Global Management and Director of the Institute of Innovation and Technology Management, Ted Rogers School of Management, Ryerson University, Toronto, Canada; Visiting Research Professor, Department of Information Systems, University of Cape Town; Guest Professor at Halmstad University, Sweden; and Docent in Information Systems University of Jyväskylä, Finland. In 2012 he was VELUX Visiting Professor of Information Technology Management, Copenhagen Business School, Denmark; and in 2011 he was Andrew Mellon Foundation Mentorship Professor in Information Systems, UCT. Ojelanki has been a member of the faculties of Schulich School of Business, York University, Toronto; Stephen M. Ross School of Business, University of Michigan, Ann Arbor; School of Business, Virginia Commonwealth University; Department of Computer Science, Aalborg University; and Aarhus Business School, University of Aarhus, Denmark. In 2009 he received D.Phil (Honoris Causa) from the Faculty of Engineering, University of Pretoria for International Contributions to Research Methods in Information Systems.

Research Team

Hanna Woldeyohannes
Research Scientist
hwoldeyo@ryerson.ca

Michael Alabi, PH.D.
Research Scientist
michael.alabi@ryerson.ca

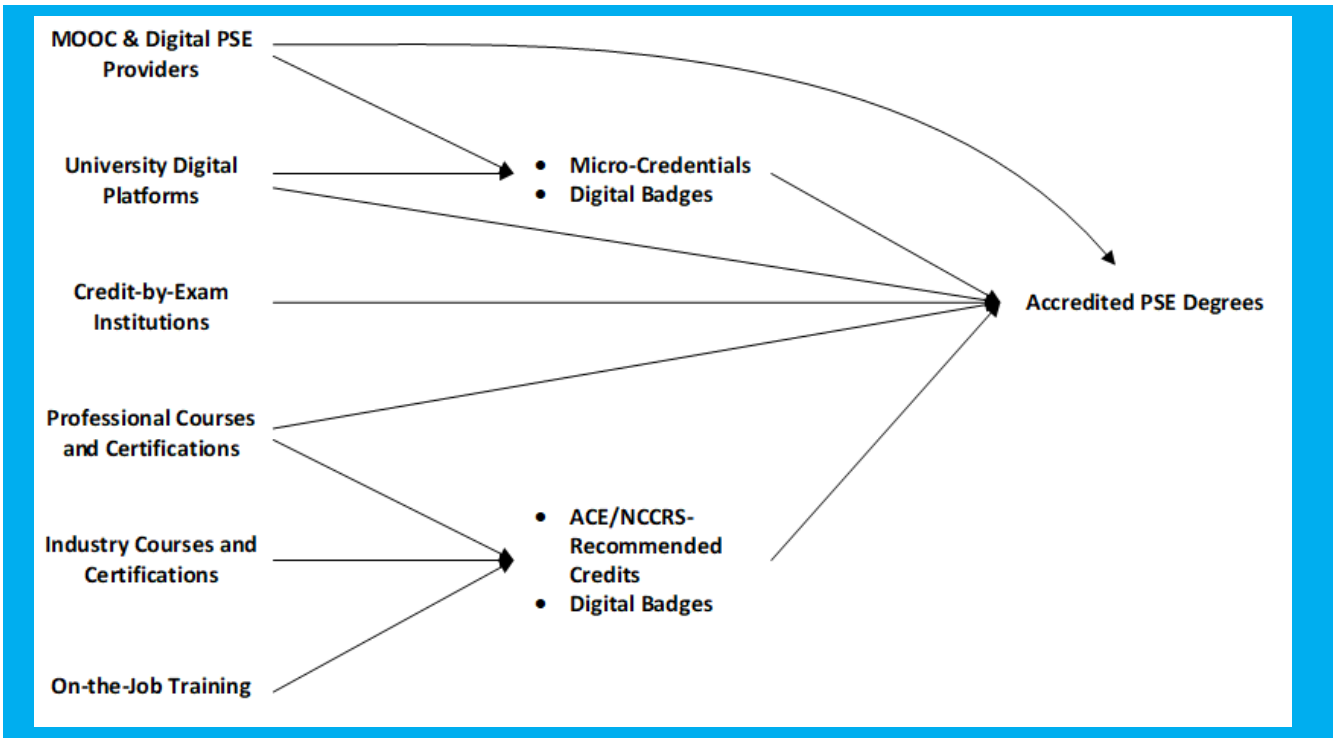
Mohamed Elmi, PH.D.
Research Scientist
mohamed.elmi@ryerson.ca

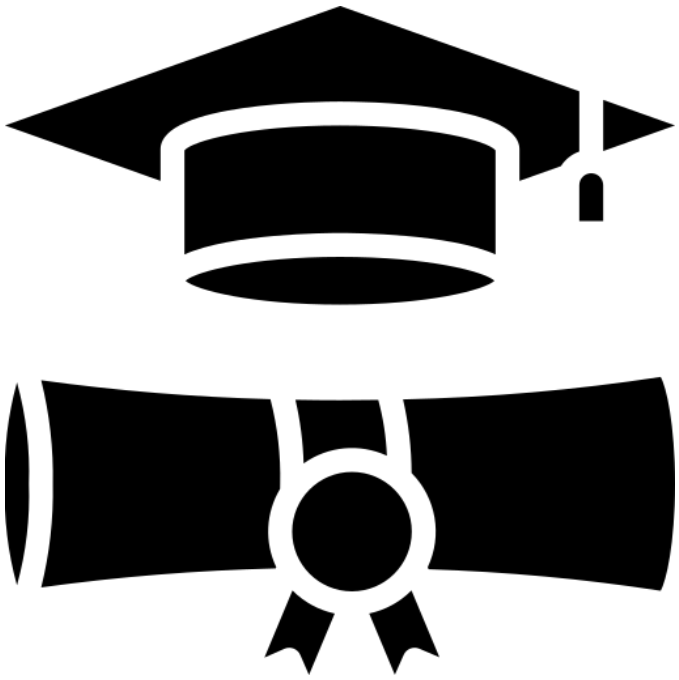
Danan Mbozi
Junior Research Scientist
danan.mbozi@ryerson.ca

Introduction

The rise of platform economy has seen the growth of companies and consortia offering post-secondary education (PSE) courses open to anyone with a digital device and a viable internet connection [6,15,22]. New digital media environments such as free massive open online courses (MOOCs), YouTube© and specialized platforms such as Coursera®, MOOC.org, AcademicEarth.org, edX and Udacity.com now provide a digital PSE ecosystem that enables non-traditional paths to learning and development via one-off PSE courses through micro-credentials encompassing professional and executive education, Bachelor, Master and Doctoral degrees [50,51]. It is important to note that non-traditional paths to PSE degrees are not a new phenomenon. In North America, the US has a long history of PSE innovations going back to the 1899 founding of the College Board® noted for granting credit-by-exam, the National College Credit Recommendation Service (NCCRS) founded in 1973 by the Board of Regents of University of The State of New York, and the College Credit Recommendation Service (CREDIT) established in 1974 by the American Council on Education (ACE). The latter two organizations, NCCRS and ACE, evaluate non-traditional training and education and recommend their college credit equivalencies for transfer to traditional universities and colleges. They now are critical components in the infrastructure supporting the expanding digital PSE ecosystem. The digital PSE services ecosystem reveals multiple paths to PSE degree completion that aretransforming the concept of higher education as that attained in university settings as defined by physical spaces of lecture halls and dormitories. PSE students are now highly mobile, co-enrolling for courses with more than one PSE at a time and transferring courses from one to another PSE institution for credit toward their degrees (NCES, 2014). In the new digital PSE service provider ecosystem, there are many points of entry, exit and re-entry on the journey to PSE degree completion. But for the uninitiated, the opportunities for and paths to credit evaluation, transfer and PSE degree completion are not easily accessible or understandable. As we will discuss later, the proliferation of digital PSE service providers has led to complex set of options to accredited PSE completion starting with one-off courses and micro-credentials then progressing to degrees (see Figure 1). However, a fundamental attraction of the digital PSE ecosystem is an infrastructure that supports not only any time and place instruction and engagement [7,15,16], but also AI tools for course matching, digital badging, credit discovery, evaluation and endorsement by institutions such as ACE and NCCRS, as well as digitally generated transcripts for credit reporting [17,34,53]. The disruption of PSE in physical classrooms for about 70% of the global student population due to the 2020 COVID pandemic further buttress the argument for the digital PSE ecosystem. In response to current events, many traditional universities (e.g. Universities of Michigan, Texas, Massachusetts) have made it easier for learners to take PSE courses from a wide range of digital PSE service providers [9,48,49].

Figure 1: Digital PSE Service Providers and Emerging Paths to PSE Degrees (Bachelor, Master, Doctor)





Research Goals and Methodology

TThe goals of this report are: (1) to map institutional policies and practices for the transfer of credits from non-traditional digital PSE service providers to traditional universities; and (2) to describe the complex paths to PSE degrees in the emerging digital PSE ecosystem. The research is broad in scope and focused on understanding the new multi-path PSE career strategies available to students as facilitated by emerging Internet-based PSE service providers in North America. The research methodology for this project involved data collection from a wide variety of sources and intensive and extensive analysis of the data. The data collection comprised an iterative process that involved the use of programable computer tools for finding sources and manual procedures for retrieving and compiling the data. To analyse the data, we used software tools for qualitative data analysis and mapping. We started our search for relevant data by interrogating and collecting data from the following sources: (1) the websites of 1200 US public and private universities and colleges; (2) the platforms of 4 digital PSE service providers including (Appendix A): (a) AcademicEarth's database of more than 9000 courses and 90 degrees from universities globally; (b) edX.org's database of information on 140 universities, more than 2500 courses, 856 professional certifications, 48 micro-bachelor, 390 micro-master and 13 master degrees; (c) Coursera® database of 5100 courses, 50 professional certifications and more than 25 degrees (bachelor and master). (e) FutureLearn is owned and operated by The Open University, UK; offers more than 2000 courses, 120 certificates and 50 degrees (undergraduate and graduate) from 30 universities worldwide. The initial analysis of the data confirmed the expectation that universities, by and large, employ similar requirements for transfer students from other traditional universities. However, it did not yield much insight into the credit transfer policies and practices between the digital PSE ecosystems and traditional universities. This class of PSE platforms generally view themselves as intermediaries that facilitate interactions between PSE learners and service providers. Courses offered for credit by accredited universities are subject to normal university credit transfer policies within accepting universities, however, free courses or professional certifications, which are the largest number offerings on these platforms, are not afforded the same treatment. For example, PSE learner can take any course offered for a fee or free on these platforms, but the onus is on the learner to figure out the college credit transfer implications. In the second round of data collection, we interrogated a separate class of digital PSE service provider (Appendix B), including Pearson Accelerated Pathways, Study.com, StraighterLine, Sophia Learning, Saylor.org. These providers have various course offerings including college-level credit-awarding lower-division and upper-division courses that award credit. Further analysis of these platforms, their course offerings and credit transfer practices led to a breakthrough that helped us to understand the digital infrastructure underlying the credit transfer practices of such large PSE digital platforms in the context of the larger ecosystem. In our analysis, we observed that many of these digital PSE service providers claimed that their courses were accredited by the American Council on Education (ACE)

and National College Credit Recommendation Service (NCCRS) and, therefore, transferrable to more than 2000 US universities (Appendix C). Credit-awarding courses offered by these PSE service providers are courses that have been evaluated by and received recommendation from ACE and/or NCCRS. Students taking these courses must also pass proctored exams that are approved by ACE/NCCRS and achieve a grade of 70% or more so that the credits may be transferable to any of the 2000 US universities in the ACE/NCCRS network of academic partners. Students may request for transcripts from ACE to facilitate credit transfer. This observation led us to interrogate the two institutions, ACE and NCCRS, and their policies and practices on credit evaluation and transfer to traditional universities. In a systematic examination of the ACE and NCCRS websites we found: (a) ACE has a database of 35,000 non-traditional courses and professional certifications offered by some 800 companies and government organizations that have been evaluated and awarded university credits at the bachelor's and master's levels offered by 200 universities and companies; and (b) NCCRS has a database of 5,200 non-traditional courses and professional certifications from 500 US companies that have been evaluated for college credit at the bachelor's and master's levels. On further investigation, we found that both these organizations engage teams of academic evaluators that review submissions of course materials and certification examinations from companies and non-profit organizations. NCCRS employs thousands of volunteer evaluators recruited from the ranks of current and retired college and university professors as well as subject matter experts. The third stage of our analysis entailed selecting samples of unaccredited courses and professional certifications offered by AcademicEarth, Coursera® and edX, then searching the ACE and NCCRS databases to determine if they had been evaluated for university credit transfer. From this analysis, we estimated that around 80% of the courses and professional certifications offered on these platforms had already been evaluated for university credit. Upon further interrogation of the ACE policies of credit evaluation, we uncovered a 2020 collaboration between ACE and Credly that applies the open digital badging technology the to compile and record all successfully completed ACE-recommended credits earned via digital PSE platforms. This finding led to two strands of research to understand: (a) the infrastructure of digital badging and how it is deployed in the digital PSE ecosystem; and (b) the practice of digital badging and its academic validity. While on the surface the interrogation of this digital infrastructure would appear to be a detour in our study of credit transfer policies, it proved to be essential to understanding the largely invisible and embedded activities of credit evaluation and transfer within and beyond the ecosystem digital PSE service providers. Data collection on this issue required running some experiments on the infrastructure to understand how it worked computationally and reading the literature on digital badging systems. The experiments enabled us to understand the architecture of the digital infrastructure and to explain how digital badging can facilitate the consolidation of disparate courses (free or paid) taken from any number of PSE service providers for university credit. The academic research shed light on digital process innovations in credit evaluation, competence validation that now support credit transfer policies between non-traditional PSE service providers and traditional universities. A final challenge of this research was to puzzle out how learners could navigate these digital PSE ecosystems in order to derive the best outcomes. The volume of data on these platforms is simple overwhelming. And while it is easy find free high-quality university level courses in any subject on platforms such as AcademicEarth, there is no information on how learners can obtain university credit for their efforts. For paid university courses, Coursera® provides an AI machine learning tool to help PSE learners match relevant courses offered on the platform with courses in their university's catalogue. We spent many weeks searching these digital PSE ecosystems to understand how a PSE learner could maximize his/her return from taking free courses on these platforms.

Organization of Research Findings

For the purpose of clarity and comprehension of the subject matter the rest of this report is organized as follows: Section 1: Academic Accrediting Institutions, focuses of briefly describing institutions for the accreditation of PSE services (courses and degrees). This is a necessary starting point because credit transferability and learner's mobility within the digital PSE ecosystem and PSE service providers for the purpose of obtaining a legitimate accredited micro credential or degree is governed by policies set out by regional associations for the accreditation on colleges and universities. Section 2: Institutional Policies for Credit Transfer, discusses current institutional policies for credit transfer from non-traditional digital PSE service providers to major traditional US state universities and Canadian universities. Section 3: Relevant Online PSE Programs, discusses the emerging constellation of digital service providers (AKA platforms) of accredited PSE programs including individual courses, certifications, micro-credentials and degrees. Section 4: Provides an overview of the architecture of the digital infrastructure supporting the credit evaluation and transfer policies and practices of the emerging digital PSE service provider ecosystem. Section 5: Conclusions, provides a description of transformative digital practices that are driving change in PSE service delivery and learner mobility. Section 6: Appendices of PSE Programs, provides tables containing lists of PSE courses, examinations, professional and industry certifications, micro-credentials and degree programs which constitute the new emerging digital ecosystem of non-traditional PSE.

Academic Accreditation Institutions

Accreditation is a foundational basis for university policies and procedures, consequently it is pertinent to this report. In this section, we provide a brief overview of institutional structures and mechanisms of accreditation that underlay transfer policies in the emergent global PSE digital ecosystem. While PSE institutions decide which external credits, i.e., credits earned at other institutions, may be accepted towards their degree programs, the global reach of digital PSE service providers presents emerging complexities in policies for credit transfer. The internet makes it possible for PSE service providers outside of North America to offer their services within North America. For example, platforms like Coursera® and edX.org offer courses, micro-credentials, from tertiary academic institutions in other parts of the world such as Australia, France and the UK. In this regard, North American academic institutions assessing credits for inbound transfer must also consider issues of international accreditation. Moreover, individuals earning credentials from foreign PSE institutions through digital service providers, such as Coursera®, can find it problematic to obtain licenses in accounting, engineering and other professions if the credentials are not accredited in their home country. This issue of the international transferability of digitally earned PSE credits was on the agenda of UNESCO's 2020 Global Convention on Convention on Digital Higher

Education. While many of the issues are still under discussion, it is necessary to outline the three levels of institutional structures of accreditation that influence which academic courses, certifications, micro-credentials of non-traditional digital PSE service providers are currently acceptable to traditional universities for credit transfer or as prerequisites to higher degree programs. There are three levels of academic accreditation underlying institutional practices of credit transfer between digital PSE service providers and traditional universities: International, Regional/Provincial and Professional/Industry. At the international level, the Canadian and US governments engage with UNESCO on the Convention on the Recognition of Higher Education Qualifications that governs international credit recognition. The European Union embraces a set of policies governing the assessment and transfer of PSE credits throughout its member countries – the European Credit Transfer and Accumulation System (ECTS) – which were developed between 1989-1995 to facilitate student mobility in Europe. Canada does not have an accrediting body at the national level; instead, provincial/territorial legislation helps to ensure quality in post-secondary institutions. However, membership in Universities Canada, a national organization, together with a provincial charter signals the quality of Canadian universities. In the US, Council of Higher Education Accreditation (CHEA) recognized national accrediting bodies play a legitimating role in the transfer of foreign PSE credits and credentials. The US accreditation system includes additional layers of legitimizing institutions at the regional level and below: (1) regional college and university accrediting associations (Appendix D); (2) credit-by-exam institutions, such as the College Board, and Defence Activity for Non-Traditional Education Support (DANTES/DSST), non-profit organizations dedicated to helping PSE learners achieve university credit for any knowledge they acquired through work experience, non-traditional courses and personal development; (3) institutions that evaluate and recommend college credit for on-job-training as well as industry and professional certification courses, such as the National College Credit Recommendation Service (NCCRS) and American Council on Education (ACE); (4) at state level, policies that push for state wide transferability of lower-division credits through promotion of uniformity and consistency of course content across institutions. The institutions in categories 2 and 3 require some discussion here as they play an increasingly important role in credit transfer practices in the emerging PSE digital ecosystem. There are five institutions of importance: (1) The College Board®, founded in 1899, is the oldest. Through standardized testing, it offers PSE credits which are accepted by more than 6,000 universities and colleges worldwide. (2) The Defence Activity for Non-traditional Education Support (DANTES/DSST), which offers standardized exams for educational courses offered by different branches of the US military. The exams can be taken by civilian and military employees of both the US and Canadian services. These credits are accepted by all regionally accredited universities and colleges in the US. (3) The American Council on Education (ACE), founded in 1918, is a non-profit public advocacy organization that partners with more than 1700 universities and colleges. In 1974, ACE launched the College Credit Recommendation Service (CREDIT) to help students obtain academic credit for non-traditional education. More recently, in 2014, ACE launched the Alternative Credit Project™ (ACP) which evaluates on-the-job training and professional certification courses for academic credit. ACE is also a leading innovator in open digital badging for validating competence attainment in non-traditional education. (4) The NCCRS was founded in 1973 by the Board of Regents of University of The State of New York to evaluate non-traditional education and recommend PSE credit for transfer to colleges and universities. NCCRS works with 1,500 colleges and universities in the USA to facilitate PSE learners in securing transfer for credits they recommend. (5) The International Accreditors for Continuing Education and Training (IACET), founded in 1968 and accredited by the American National Standards Institute (ANSI), is now an influential player in the digital PSE service ecosystem as it is the primary accreditor of continuing professional education courses offered by more than 1,000 providers in 15 countries. IACET collaborates with ACE, NCCRS and CCAP on issues of

credit evaluation and recommendation for courses offered by the PSE service providers they accredit. For several reasons, these organizations, which were innovators in PSE credit evaluation for non-traditional education, are emerging as key influencers in credit transfer policies and practices in the emerging PSE digital ecosystem.

Digital Badging: An Emerging Accreditation Practice

A new and transformative accreditation practice in the digital PSE ecosystem is digital badging [3,20,26,32,54]. Digital badging is a technological innovation that is revolutionizing the assessment and validation of PSE learning outcomes and competences [35,42,53]. While there are different types of digital badges, our focus is on badges that legitimize PSE competences, and are acceptable by universities and companies as validation of the learner's competence [19,20,21]. First deployed to validate competences achieved by learners through online courses in computer science courses such as programming, digital badges are now adopted in other academic areas, such as languages, STEM, engineering, nursing, medicine and pharmacy [5,17,25,26,55]. Digital badging is emerging as an essential tool for verifying the competencies of healthcare professionals taking in-class courses or continuing professional development courses in online learning environments [18,21,41]. For quite some time, non-traditional PSE service providers have used digital badging to authenticate and legitimize their credentials with employers of their graduates. But recently, a number of universities worldwide (Australia, Germany, UK, USA) have adopted the practice as a mechanism for validating outcomes from distance learning courses and specialized competences in various scientific fields [2,44,54]. A recent report on advancements in higher education posit that digital badging will emerge as the most transformative practice in the accreditation of PSE credentials [1].

A fundamental attraction of digital badging in higher education is its capabilities for tracking and remotely verifying the identity of the individual taking an exam or following a course through the use of digital biometrics, such as facial recognition and voice prints [30]. Another important feature of this technology is the open digital infrastructure for digital badging pioneered by Firefox and the general registry for digital badges of Acclaim by Credly. This technology offers universities new strategies and capabilities to manage their exposure to various forms of student academic misconduct as well as credential fraud [29,39]. With open digital badging, employers and university can digitally validate the credential within minutes using current search and discover digital tools. Recently, ACE partnered with Credly for the issuance of digital transcripts of recommended academic credits for various non-traditional learning outcomes, including job training courses. In this system, a PSE learner applies to ACE for alternative credit by providing course details; the application would then invoke the Credly Acclaim digital infrastructure to validate the digital badge for level of competence and compares the course with the ACP database. An official transcript of recommended transfer credit is then issued by ACE. This ACE-Credly collaboration is now a key mechanism and digital infrastructure for credit assessment and recommendation for PSE courses taken on MOOCs, industry and professional certification for which digital badges are awarded. Presently, open digital badging is emerging as a core component of the digital PSE ecosystem, used by various PSE partner networks for the validation of learning outcomes and the legitimation of non-traditional PSE credentials [3,8,13,19,30,31,42,43]. More recently, open digital badging has been adopted by International Association for Continuing Education Training (IACET) as a mechanism for validating competence of learners taking continuing professional education credits via most of the 1000 PSE service providers it accredits worldwide.

Institutional Policies for Credit Transfer

Institutional policies for the transfer of PSE credits be classified into the following categories: (a) number of credits transferrable; (b) accreditation of courses and certifications; (c) criteria for assessing quality of courses and certifications; and (d) criteria for grade assessment of applicable credits. All North American universities stipulate the minimum number of credits that must be taken at the university granting the degree (undergraduate or graduate). The number of credits which can be transferred range between 30 (1 academic years) and 90 (3 academic years) of a four-year Bachelor degree. But as a general rule, most North American universities accept a maximum of 60 transferrable credits towards a Bachelor degree, which equates to 50% of the total credits required or two years of a four-year Bachelor degree. However, several US state university partnerships (e.g. Western Governors State University) and some individual universities founded with the mandate to provide flexible paths to PSE such as Southern New Hampshire University (founded 1932), Excelsior College (founded 1971), Antioch University (founded 1852), State University of New York -Empire State College (founded 1971), etc. accept as many as 113 credits or more than three years of credits toward the four-year Bachelor degree. See Table 1 for an illustration of the credit transfer policies of this class of universities.

Table 1: Illustration of Credit Transfer Policies for Regionally Accredited Non-Traditional Universities

Credit Rules	Excelsior College (1973)	Western Governors Uni (1997)	Walden Uni (1970)	Thomas Edison State Uni (1972)	Antioch Uni (1852)	SUNY Empire State College (1971)
Maximum number credits	113 Semester	90 Semester	135 quarter credits . 90 lower-division . 45 upper-division (min 45 to be completed at U)	90 Semester	90 Semester	90 Semester
Minimum grade	C-	C-, C for Teacher's College	C	C for specialization Otherwise D	C	C
Regional accredited PSE institution	Yes, MSCHE	Yes, NWCCU	Yes, HLC	Yes, MSCHE	Yes, HLC	Yes, MSCHE

Table 1: Illustration of Credit Transfer Policies for Regionally Accredited Non-Traditional Universities

Credit Rules	Excelsior College (1973)	Western Governors Uni (1997)	Walden Uni (1970)	Thomas Edison State Uni (1972)	Antioch Uni (1852)	SUNY Empire State College (1971)
Accredited examinations	AP, CLEP, DANTES/DSST, IB,	---	AP, IB, Uexcel, ECE, CLEP, DSST,	AP, CLEP, DSST, TECEP, NYU Foreign Language Tests, Defense Language Institute Tests, Foreign Service Institute Tests, NCCRS, ACP	AP, DSST, CLEP	AP, IB, Uexcel, ECE, CLEP, DSST,
Accredited Job Training Courses	ACE, NCCRS	ACE	ACE, NCCRS	ACE, NCCRS	ACE	ACR, NCCRS, CCAP
Accredited courses from digital platforms	Saylor Academy Study.com StraighterLine Sophia Learning	Saylor Academy Sophia Learning Straighterline	Saylor Academy Study.com StraighterLine Sophia Learning	Saylor Academy Study.com StraighterLine Sophia Learning	---	---
Non-Accredited courses from digital platforms	---	edX - WGUx Coursera, Udacity	Baldrigde	edX, Coursera, Udacity	---	---
Accredited micro credentials from digital platforms	---	---	---	edX - NYU Tandon School of Engineering Micro Bachelors in Computer Science	---	---
Excluded subjects	---	---	---	---	---	---
Professional Certifications	CCNA, CompTIA, CISCO, ICDL, Microsoft, Oracle, SAS, SUN, (ISC)2, A+ PMI, HE Certification Institute (HRCI), International Assoc. of Administrative Professionals (IAAP), National Court Reporters Association (NCRA),	Amazon Web Services, Axelos CISCO, Certified Internet Web, CompTIA, EC-Council, GIAC, Google, LPI, Microsoft, Oracle, Sun, Red Hat, Scrum, Vmware, PMI, Society for Technical Communication (STC)	CISCO, CompTIA, Oracle, Sun, Addictions Certifications by State, Lactation Education Resources, RCMP - Executive Officer Development Program, Walden Professional Development Courses	---	---	CCNA, CompTIA, CISCO, ICDL, Microsoft, Oracle, SAS, SUN, (ISC)2, A+ PMI, And Numerous others

Generally, PSE courses earned from institutions accredited by one of the seven US regional accrediting associations are deemed eligible for transfer at face value. Credits earned via accredited exams offered by testing agencies (College Board® or DANTES) or non-traditional courses accredited by ACE are also accepted by most colleges and universities. In principle, a PSE learner can obtain credit for successfully completed courses (grade of C or higher) from a regionally accredited college/ university or ACE/NCCRS accredited courses taken with PSE digital service providers. Prior to the COVID-19 pandemic, most institutions required that their currently enrolled students seek permission before taking courses for credit from another institution. Since the pandemic, many major universities relaxed this policy and allowed their students to take courses from PSE service providers without prior permission. However, prior to enrolment, PSE learners presenting credits successfully completed (grade of C or higher) at a regionally accredited academic institution are generally acceptable subject to the institution's rules concerning number of credits. The third category of transferable PSE credits from professional institutes and industry certifications is a bit more complex. Some such courses have already been accredited by the ACE and received recommendation for a specific credit value (3-15), while others are the subject of agreements between the specific university partnerships, universities and professional institutes and industry organizations. The credits granted for this latter group depend on the university's policies for assessment on non-traditional credits. In these cases, the PSE learner may be subjected to examination or other administrative procedures. See Table 2 for an illustration of the credit transfer policies for a sample of US state universities, and Appendix E for a sample of Canadian universities.

Table 2: Illustration of Policies for Undergraduate Credit Transfer at State Universities

Credit Rules	U Maryland	U Houston	ASU	U Purdue	U Minnesota	Georgia Tech
Maximum Credits Transferable for Bachelor	90 credits	66 credits	64 credits	32 credits	30 Credits	36 credits
Minimum grade	C	C	C	C	D	C
Regional accredited PSE institution	Yes	Yes	Yes	Yes	Yes	---

Table 2: Illustration of Policies for Undergraduate Credit Transfer at State Universities

Credit Rules	U Maryland	U Houston	ASU	U Purdue	U Minnesota	Georgia Tech
Accredited examinations	AP, CLEP, DANTES	AP, CLEP, DANTES, IB, SAT	AP, CLEP, DANTES, IB, PE, CE	CLEP, AP, IB, A-Level, DSST, UExcel, PE,	CLEP, AP, IB, GCE A-Level, DLI	AP, IB, SAT, GCE A-Level
Accredited Job Training Courses	ACP, NCCRS	ACP, NCCRS	Yes – Online Accredited courses	Yes, ACP, NCCRS	---	---
Accredited courses from digital platforms	Yes	Yes	Yes – Study.com,	Yes, StraighterLine	Yes	---
Non-Accredited courses from digital platforms	Exam Required	---	Exam Required	Exam Required	---	---
Accredited micro-credentials from digital platforms	Yes, Micro-Bachelor and Micro-Master	No	Yes, Micro-Bachelor and Micro-Master	---	Yes,	Yes, Micro-Master
Non-Accredited micro-credentials from digital platforms	Exam required	Final exam required	Exam required	---	Exam required	---
Excluded subjects	Engineering, Medicine, Health Sciences	---	Vocational and remedial courses	Remedial, Developmental	---	All Lab sciences, Psychology, Economics, Mathematics courses
Professional Certifications	CompTIA, APICS, CISCO	CompTIA A+, CCNA, COBIT 5,	Nil	CompTIA, Microsoft, Cisco, AWS	UX/UI,	No

Another emerging innovation in PSE credit transfer policy is the Interstate Passport which facilitates block transfer of lower division undergraduate general education credits. In 2010, the Western Interstate Commission for Higher Education (WICHE) created the Interstate Passport framework based on learning outcomes. Members of the Interstate Passport Network both award and accept Passports. The Network guarantees that blocks completed in the member institutions are not "unpacked" and that students who successfully complete the learning outcomes in the required areas of knowledge/skill and earn a Passport also meet the requirements of lower-division education fully and will not need to repeat courses or take additional ones. Few exceptions include: specific program-related required prerequisites, state-mandated requirements of 'state history or civics for graduation'. The passport enables undergraduate PSE learners who transfer to another university in the network to continue their education without worrying if their credits will be accepted. They simply continue their studies from where they left off at their previous university.

Graduate Credit Transfer Policies

Transfer of credits from one graduate program into another among traditional universities is unusual and often more stringent than with bachelor's degrees. At the doctoral level, credit transfer from one program to another is on an individual basis, negotiated by the PSE learner. At the master's degree level, universities accredited by the same regional accreditation body generally and reciprocally grant up to 15 credits or 50% of a 30-credit master degree program. PSE learners presenting credits successfully completed with a grade of B or higher in a similar graduate program at a regionally accredited academic institution prior to enrolment are generally acceptable subject to the institution's rules concerning maximum number of transferable credits. The third category of transferable PSE credits from professional institutes and industry certifications is a bit more complex. We deal with it below in the next section under Non-traditional PSE Service Providers.

Relevant Online PSE Programs

To develop a comprehensive understanding of what online PSE courses are transferrable to traditional North American Universities (NAU), it is necessary to describe in some detail the various types of online PSE programs that offer courses acceptable for credit at NAUs. At the time of our research, there were eight categories of online PSE service providers relevant to this analysis: (1) Credit-by-Exam; (2) the Alternative Credit Project; (3) MOOC Platforms; (4) professional certifications; (5) high tech companies; (6) university partnerships; (7) private online universities; and (8) State universities online programs. These organizations are relevant because they provide a range of PSE credits from individual courses to micro-credentials and degrees that are accepted for transfer among NAUs.

Non-Traditional PSE Service Providers

Herein we describe the basic characteristics of the first five categories listed above, the non-traditional PSE service providers relevant to our analysis. The first category, Credit-by-Exam institutions (Table 4) are non-profit organizations dedicated to helping PSE learners achieve university credit for any knowledge they acquired through work experience and personal development. In this category, the College Board®, a not-for-profit organization founded in 1899, is the oldest institution offering PSE credits by standardized testing which are accepted by more than 6,000 universities and colleges worldwide, including some Canadian universities. The College Board's Advanced Placement (AP) and College Level Exam Program (CLEP) offers standardized tests in 36 subject areas in natural science, computer science, social science, humanities and business that covers the first two to three years of a four-year Bachelor's degree (Appendix F). Another important player in this category is the Defence Activity for Non-traditional Education

Support (DANTES/DSST), which offers 33 exams in college subject areas accepted by all regionally accredited universities and colleges in USA. These exams can be taken by civilian and military employees of both the US and Canadian services. There are many emerging players in the credit-by-exam space including, UExcel which offers 58 exams in college subject areas of Business, Sciences, Humanities and so on; and Excelsior College Examinations (ECE) which offer nursing theory exams and other professional exams for university credit.

Table 3: Credit by Exam Institutions

Credit-by-Exam Institutions		
College Board®	Advanced Placement (AP)	· Launched in 1952 comprises of advanced courses in 11 subject areas · Provides college-level curricula and examination for high school students in the United States and Canada · Accepted at universities and colleges in more than 40 countries
	College Level Examination Program (CLEP)	· Launched in 1967 for adult students to earn college credit. · Offers standardized tests to assess college-level knowledge in 36 subject areas · Accepted by more than 2900 colleges and universities worldwide
International Baccalaureate®	International Baccalaureate (IB)	· A non-profit foundation founded in 1968 · IB diploma exams used for university entrance and AP credit by universities in 158 countries.
DANTES®	Defense Activity for Non-traditional Education Support -(DANTES)/DSST	· DANTES/DSST established by US military for military and civilian employees to obtain college credit for on-the-job training · Offers 33 exams in college subject areas accepted by all regionally accredited universities and colleges in USA
UEXCEL	College Level Examination	· Offers standardized test to assess college level knowledge in 58 subjects in several disciplines · Accepted by a growing number of universities for transfer credit into their programs

In the second category, the preeminent player is the American Council on Education (ACE) which launched the College Credit Recommendation Service (ACE CREDIT ®) in 1974 to assess non-traditional learning experiences (e.g. workplace learning, courses, exams), determine college-level equivalences and make transfer credit recommendations to facilitate the pursuit of higher education. ACE also has a database of 35,000 on-the-job training, professional certification and other courses that have received recommendation for university credit (see sample in Table 5). In 2014, ACE initiated the Alternative Credit Project™ (ACP) to further extend the range of non-traditional courses that may earn credit. As part of the ACP, 3 MOOCs offered via edX received credit recommendation acceptable to ACE's member universities. ACE now has a partnership network with hundreds of US federal and State government agencies, Fortune 500 companies and professional institutes for the evaluation of on-the-job training, industry and professional certifications for the granting of university credit to adult learners (Table 5). The ACE Center for Education Attainment and Innovation (CEAI), is at the vanguard of digital transformation in PSE, developing collaborations with digital platforms such as Credly's Acclaim which provide credit discovery, digital badge validation and curation for individuals. Since 2020, ACE, in collaboration with Credly, has offered PSE learners the service of consolidating competency-based courses taken from non-traditional PSE service providers, generating and sending machine-readable ACE academic transcripts directly to college admissions systems.

Table 4: Sample of Industry and Professional Certifications Evaluated for University Credit by ACE

SAMPLE OF ACE PARTNER NETWORK COMPANIES	
Google	Google IT Support Professional Certificate' for • 6 lower division credits in information systems, • 3 credits in computer networking, • 3 credits in cybersecurity • other credits in data analytics
Microsoft	Microsoft Learning offers training and offers 15 exams for certifications • Each exam is 1 award between 1 to 3 credits in computer information systems
Amazon	Amazon offers several courses in information technology, cloud computing and analytics for which PSE learner can request ACE credit
IBM	IBM Education offers a large number of courses in computer science, information technology, cloud computing and analytics for which PSE learner can request ACE credit
Oracle	Oracle Education offers a large number of courses in computer science, information technology and analytics for which PSE learner can request ACE credit
PROFESSIONAL ASSOCIATIONS/REGISTRIES/INSTITUTES	
American Bankers Association	• Exams on various subjects general accounting to lending and bank management. • Each awarded between from 3-6 credits
Credit Union National Association	• Exams on investments, lending, risk management and auditing. • Each awarded 1-9 credits
Mortgage Bankers Association	• Exam on Mortgage lending with 3 recommended courses
Health Financial Management Association	• Offers 1 course in the 'Business of Health Care' which awards 3 college credits
National Registry of Radiation Protection Technologists	• Offers 1 exam that covers 6 knowledge areas • Awarded 30 credits
American Institute for Chartered Property Casualty Underwriters	• More than 40 courses and exams on risk financing to ethics and managing cyber risk • Each awarded between 2-4 credits

The third category includes a growing number of education service providers such as academic textbook publishers Pearson and McGraw Hill who have launched digital PSE platforms to offer college-level courses. Also, in this category is Study.com, a for-profit online learning platform founded in 2002. In partnership with 32 regionally accredited universities and colleges, study.com currently offers more than 150 first through third year university courses accredited by ACE and NCCRS (Appendix C). StraighterLine and Sophia Learning are other platforms similar to Study.com. MOOC providers such as Coursera ®, edX and MOOC.org are another type of platform in this category that provide access to individual course offerings in a wide range of subject areas as well as micro-credentials (undergraduate and graduate) and full bachelor's and master's degrees (Appendix A). While there is no designated authority that evaluates MOOCs for credit, students may take different paths to earn college credit via MOOCs. For example, Coursera ® offers Mastertrack certificates that allow students who opt to pursue a degree in the university that delivered the program on the platform to transfer their credits. edX has a similar offering with the MicroBachelors and MicroMasters microcredential programs. edX also collaborates with Charter Oak State college to enable students to request credits for edX certificate courses. Alternatively, students could take courses or obtain certifications with Coursera or edX in preparation for ACE-recommended certification exams with transferable credits. in the fourth category, professional accrediting councils are important providers of specialized PSE education and certifications recognized by business and government organizations for hiring and promotion of their professional staff. For example, CompTIA®, founded in 1982, provides standardized test and certifications of specialized areas of IT. Another is the American Production and Inventory Control Society (APICS), founded in 1957 as a non-profit, which has delivered PSE certification programs for supply chain management since 1973. For example, NCCRS has recommended 6 graduate credits in Industrial Engineering or Business for PSE learners who earned the APICS Certified Supply Chain Professional between February 2012 - June 2020. The Project Management Institute (PMI), founded in 1969, and the International Institute of Business Analysis (IIBA), founded in 2003, are providers of PSE certifications highly recognized by government and private organizations; ACE recommends university credit for all PMI and IIBA courses for which a pass of 70% is achieved. Furthermore, Universities and PSE colleges globally (Australia, Canada, UK and US), now accept such certifications for credits towards appropriate degree programs. The final category of non-traditional PSE service providers of interest here are high tech companies such as Amazon, CISCO Systems, Google, IBM, Microsoft and SAS. These offer extensive training programs in data science, computer science and engineering which result in specialized certifications, all of which are evaluated by ACE and listed in its database of recommended university credit courses. However, we found no evidence that Canadian universities accept transfer credits from ACE or NCCRS.

University Partnerships, Micro-credentials and Degrees

In this section, we describe university partnerships and digital PSE services that deliver micro-credentials and degrees. An important category of PSE programs that require discussion is the area of micro-credentials and degrees offered in partnerships. The main players in this category are Coursera®, edX and AcademicEarth. Coursera® (founded in 2012) is a leader in digital PSE services that focuses on engineering, science and business studies. While Coursera® was founded in the US, it now has 227 partners in 54 countries. In collaboration with its partners of 160+ universities, it offers 45 certificates and micro-credentials and more than 25 degrees (undergraduate and graduate). However, it is important to note that Coursera® is a platform enterprise, in this regard it functions as a market intermediary between PSE learners and content providers. Coursera® has no formal mechanisms for credit transfer among the universities which offers courses and degrees on its platform. PSE learners taking university courses and degrees offered on Coursera® who wish to

transfer credits or gain entry for advanced degrees at local universities are subject to relevant institutional levels of accreditation, international, national and regional; and university credit transfer policies. We will return to Coursera® for a fuller discussion of micro-credentials and full degrees. However, it is important to note that, presently, all the universities offering courses are accredited in their countries, and highly ranked on the QS World University Rankings® and the Times Higher Education World University Rankings. To facilitate credit transfer, Coursera® recently launched CourseMatch®, an AI machine learning tool to help PSE learners match relevant courses offered on the platform with courses in their university's catalogue. The non-profit edX is a platform for MOOCS founded in 2012 by Harvard and MIT; it collaborates with 140 university partners worldwide to offer online university-level courses in a range of disciplines, including science, engineering, business and law. It hosts more than 24 million PSE learners worldwide enrolled in 856 professional certificates, 48 micro-bachelor, 390 micro-master and 13 different master degrees offered by its partners. It also conducts a significant amount of research on digital learning. All university partners offering courses and degrees on edX are accredited in their countries, and highly ranked on the QS World University Rankings® and the Times Higher Education World University Rankings. Consequently, the path for transfer credit for accredited university courses is unproblematic. However, edX offers 2000 free courses, the path for gaining university credit for these and its professional certificates is via ACE or NCCRS (discussed above). It is important to note here, that we found no information on Canadian universities accepting ACE and NCCRS endorsed courses. Another noteworthy organization in this category is Academic Earth, a non-profit organization founded in 2009 is with the stated mission to provide free global access to education. A key role of Academic Earth is locating and curating academic lectures in some 50 disciplines from universities worldwide in a digital repository. Presently, this non-profit organization is a platform offering free courses in a wide range subjects from the world's top universities, as well as degree programs that charge regular tuition fees.

Digital Infrastructure for Credit Evaluation and Transfer

A foundational component of the digital PSE service provider ecosystem is a new emerging digital infrastructure for the evaluation of learning outcomes from non-traditional courses for university credit. This section provides a brief overview of the relevant infrastructure and practices identified in this research. The basic components of the new digital infrastructure identified are: (a) open architecture of digital badges, (b) badging practices, (c) course repositories, (d) machine learning algorithms, and (e) web searching programs. An open architecture enables the various actors in the digital PSE ecosystem to focus on their own domains of specialization while following some basic digital protocols that enable credit evaluation and transfer. Digital badging first arose as a practice for recognizing levels of competence achieved by players of computer games. Perhaps the earliest implementation of digital badges was the Microsoft Xbox 360 Gamerscore system (2005). This digital badging system enabled gamers in remote villages or small towns in any country to be recognized by the worldwide gaming community for their accomplishments. A second important milestone in the development of digital badging important to this research project is the 2007 call of Eva Baker, President of the American Educational Research Association (AERA), for the development of merit-badges to certify competence attainment for non-traditional PSE that would enable learners career advancement in university and industry [4]. From its early development to the present time digital badging has had a profound impact on all forms of traditional and non-traditional PSE [25, 27,45,31]. However, an in-depth discussion is beyond the scope of this report. A variety of factors have influenced the adoption of digital badging by organizations offering various types of non-traditional PSE service providers as a mechanism for authenticating the competence attainments of individuals taking their training courses.

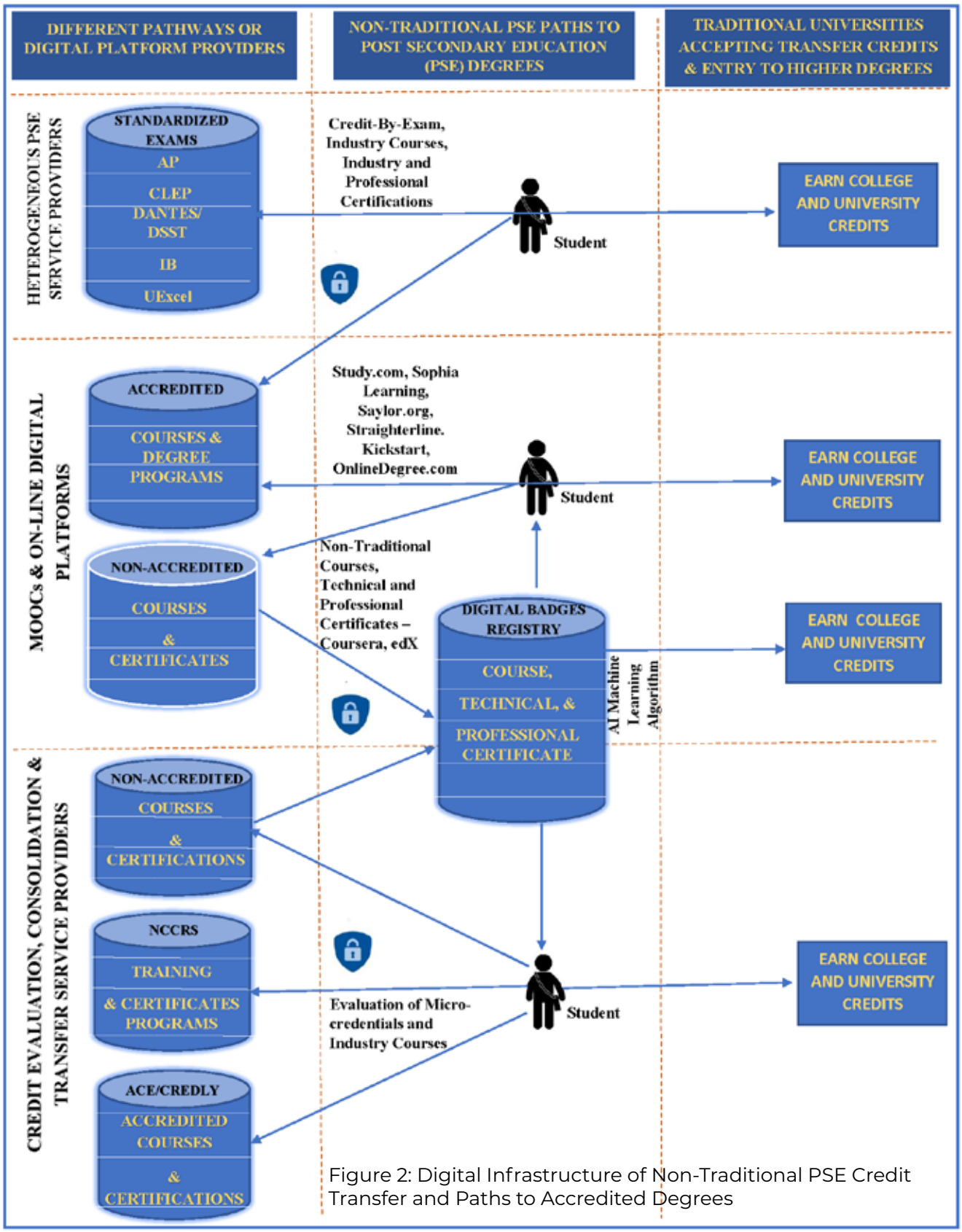


Figure 2: Digital Infrastructure of Non-Traditional PSE Credit Transfer and Paths to Accredited Degrees

Open Architecture

The digital badge open architecture was designed by Peer-2-Peer University and Mozilla, and implemented by Mozilla with support from the MacArthur Foundation. The Open Badge specification and Open Badges Infrastructure (OBI) software standards were implemented in March 2013. While a digital badge encodes metadata that identifies the recipient, the issuer, description and criteria of the achievement, date issued, and so on, other information associated with the badge are sharable among stakeholders using the registry. For example, sharable digital information includes: (a) defined outcomes required to earn the badge; (b) evidence that demonstrates a learners' competences; (c) qualifications of the PSE service provider; (e) the issuing organization and their trustworthiness. The Open Badge architecture not only enables PSE service providers and other organizations to share such information, it also enables PSE learners to accumulate (stack) badges into their profile account or 'backpack' [20,26,28,32,43]. They can then broadcast achievements/qualifications to employers or over professional networks such as LinkedIn. The Open Badge standards and protocols now form the basic component upon which the digital infrastructure and practices for non-traditional PSE credit evaluation and transfer is emerging. A central component of the new infrastructure is the Digital Badge Registry (Figure 2) in which any PSE service provider can digitally record badges for a learner encoding detailed information of their performance achievements on completing a course, micro-credential, technical or professional certification. The security protocols of the digital badge registry ensure the integrity of the record while enabling authenticated lookup access to registered PSE service providers and credit evaluation and credit transfer service providers, such as ACE, NCCRS and Credly. Upon this open digital badge architecture any PSE platform can build their own digital badging services for use by their partners. For example, Coursera built its own service called Signature Track, while edX has Verified Certificates. Other providers of credit evaluation, consolidation and transfer service providers, such as ACE, NCCRS and Credly can digitally access the services of Signature Track and Verified Certificates in order to report to their clients. We will return to this scenario a bit later.

A second component of this digital infrastructure are the various repositories of courses of specialized PSE service providers such as ACE and NCCRS, as well as online platforms. The ACE and NCCRS repositories contain previously evaluated industry courses, technical and professional certifications for which university credit has already been determined. These repositories enable PSE learners, employers, traditional universities and service providers to query/look up the credit value of more than 43,000 non-traditional courses, technical and professional certifications. These repositories also serve another function, which is the digital evaluation of new course offerings by PSE service providers. So how does this work? AI machine learning algorithms search and match content characteristics of already accredited courses to new course offerings to ascertain quality and recommend credit. This specific use of AI machine learning algorithms is deployed in the digital PSE ecosystem by various service providers. For example, Credly's Acclaim platform uses a machine learning algorithm to search digital badge repositories of PSE service providers to authenticate and consolidate micro-credentials achieved by PSE learners. Credly's main clients are Fortune 500 companies who want to know the competences of their workforce and to have explicit knowledge of the competences of potential new hires. However, the more dramatic use of this AI technology is exemplified by the collaboration between ACE and Credly for the evaluation of micro-credentials and industry courses to provide non-traditional PSE learners an accredited transcript of credits endorsed by ACE for transfer to traditional universities (Appendix G). This service enables a PSE learner to obtain university credits and an ACE endorsed PSE transcript potentially transferable to more than 2000 US universities for non-traditional courses

taken from: (a) digital PSE service providers that subscribe to the open digital badge registry; and (b) industry and professional institutes or association whose courses are already evaluated and recorded in the ACE course repository. Another service of the ACE-Credly collaboration is the generation and digital submission of PSE learner transcripts directly to university admission systems. Many PSE platforms are now offering a range of digital services to facilitate PSE credit transfer between their platforms and traditional universities. One such service is offered by Coursera which uses an AI machine learning algorithm for matching course content between their platform and traditional universities. According to Coursera PSE learner can:

> *Automatically map top-quality courses to your university or college curriculum to move learning online quickly. CourseMatch is a pilot of our machine learning solution to match your on-campus courses to the most relevant courses on Coursera.*

As of 2020, the Coursera® platform has established relationships with more than 1,800 universities in the United States and India and gained access to their course repositories enabling it to facilitate PSE learners course matching. Other platforms like AcademicEarth and MOOC.org are tied to digital credit transfer infrastructure via the service providers they host on their platforms, but as of yet offer no services similar to Coursera and edX. The other specialized platforms such as *Study.com*, Sophia Learning, Kickstart, *StraighterLine, Saylor.org*, etc. offer courses already evaluated in the ACE and NCCRS repositories and use competence badges, as such their credit transfers to traditional universities are endorsed by ACE and NCCRS. The credit-by-exam institutions also have digital repositories and the practice of direct reporting of PSE learner credits to the universities. The emerging digital infrastructure for non-traditional PSE credit transfer offer distinct paths to PSE degree completion and entry into higher degrees that combine non-traditional course from heterogeneous PSE service providers including, Credit-By-Exam institutions, companies offering industry courses, industry and professional certifications fee based and free courses offered by various digital PSE platforms (for profit and non-profit). Some of these paths are illustrated in Figure 2

Conclusion and Limitations

There are a confluence of factors driving transformation in PSE credit evaluation and transfer policies and practices. These factors include: (a) the digitalization of PSE providers organizational processes to achieve efficiencies; (b) the rising cost of traditional PSE education which is pushing learners to search for more cost efficient ways of building job ready skills and competences; (c) industry demands for employees with authenticated job ready skills and competences; (d) the rise of non-traditional PSE service providers seeking to exploit forces b and c; (e) the emergence of digital innovations enabling new and disruptive paradigms of PSE. In previous decades, traditional PSE service providers (universities and colleges) embarked on digitalization of some of their processes by implementing digital systems for: (a) course content delivery and student interaction; (b) student evaluation and examination for some types of courses; (c) student admission and transfer processing. This digitalization supported by the Internet backbone moved the organizational processes of traditional PSE providers to more open architectures that now enable interoperability with outside digital services. Examples of interoperability are the seamless integration of traditional PSE admission systems with centralized application systems and the growing practice of digital transcript exchange for transfer students. This open architecture and experiences with various forms of process digitalization is enabling further innovation such as what we observed in the credit evaluation and transfer practices discussed in the previous sections. Now to the more dynamic factors driving innovations in non-traditional PSE services and their impacts on alternative PSE path selection by learners and traditional PSE service providers.

The rising cost of traditional PSE and dissatisfaction of employers with the performative competences of university graduates has pushed companies to demand additional competence-based credentials of job applicants. Simply put, a university degree is no longer enough to secure employment in most companies. This has pushed some PSE learners to seek alternative micro-credentials and technical certifications to make them competitive on the job market. In recognition of this gap in performative competences, many universities are now collaborating with non-traditional PSE service providers to integrate industry courses into their degree curricula with a view of their graduates earning industry certifications that make them more attractive to employers. There is a growing number of these collaboration which is also lending legitimacy to industry certifications and other micro-credentials of non-traditional PSE service providers. A few local examples are Schulich School of Business collaboration with SAS Inc. and the Ted Rogers School of Management collaboration with IBM Analytics. On the other hand, business dissatisfaction with the job readiness of university graduates has influenced innovation in the competence authentication practices of non-traditional PSE service providers. Non-traditional PSE service providers seeking innovative ways for authenticating the competence achievements of their client learners are now more broadly adopting digital badging and collaborating with credit evaluation and recommendation institutions such as ACE and NCCRS. Moreover,

many non-traditional PSE service provider are forming collaborations with private companies to ensure their learners seamless transitions from courses to high paying industry jobs. As the cost of university continues to rise, large number of young adults, worried about early employability and the potential burden of crippling student loans from university study, are opting for free education on MOOCS and/or lower cost non-traditional PSE such as industry or professional certification that offer direct paths to workforce entry. This demand is driving innovation among non-traditional PSE service providers seeking to expand their market offerings. Taken together, these factors are driving profound transformation of the digital PSE ecosystems.

Education researchers [38,53], now acknowledge that the emerging digital PSE ecosystem is influencing consequential transformation of higher education by facilitating: (1) new entrants, such as academic publishers and platforms (MOOCs) into the PSE market; (2) innovations for validating learning outcomes and levels of competences (digital badges); (3) digital tools for credit search, discovery, aggregation and reporting. While the digital PSE ecosystem provides flexibility in managing conflicts of work and school, and commuting challenges [15], it also enables PSE learners to develop at their own pace, validate their learning outcomes and competences and curate them for credit towards PSE credentials and job opportunities [13,38]. With a smartphone, tablet or desktop and an internet connection, the PSE learner can attend a MOOC (class) or login into an education service provider for on-time on-demand university level content in just about any subject area. A 2019 Statista® survey research reported that 89% of undergraduate and 90% of graduate ranked their online education experiences as good as or better than in-class experiences [16]. Moreover, some students report a feeling of connection to global peers and a sense that digitally delivered PSE better equips them for the workforce [31].

Limitations of This Research

While we were systematic in collecting the data for this research, there are likely to be errors due to outdated information on websites we scraped for data collection. We assessed data on credit transfer policies and practices from a large number and wide variety of colleges and universities. However, there are gaps in the data for many universities and specifically Canadian universities that do not disclose their credit transfer policies on their websites. A second limitation of the report is the lack of publicly available information on how Canadian universities address issues of transfer credits from MOOCS and other non-traditional PSE service providers. While students at Canadian universities can take courses from universities hosted on digital PSE platforms like AcademicEarth and Coursera, they must seek prior approval. We could not find data concerning transfer credit to Canadian universities from ACE and NCCRS. Many Canadian universities now collaborate with companies such as SAS, SAP, CISCO, IBM and others to enable their students to obtain performative competences to make them more attractive for employers. Some Canadian universities do also grant credit for some technical and professional certifications but do not provide information about these on their websites. Others declare that they offer credit for non-traditional learning but again, policies for obtaining such credit is not publicly available. Another limitation of this report is the lack of information on how and for what purposes Canadian learners use these digital platforms as paths to obtaining job-ready skills and competences, micro-credentials and/or PSE degrees to rapidly advance their careers. Given the abundance of free high-quality university courses and low-cost options for obtaining accredited PSE credits, micro-credentials and degrees, it would be unlikely that subsets of Canadian PSE learners are not taking advantage of these opportunities. Another observation was the noticeable absence of many Canadian universities from

MOOC platforms. Few universities, Toronto, York, McGill have a presence on global digital PSE platforms such as AcademicEarth and edX. More research is needed to understand the absence of Canadian and intentions for this new emerging digital global PSE ecosystem. Finally, while there are academic papers published by Canadian academics and there have been some discussions by some university boards, there are no public reports of Canadian universities adopting this innovation. To overcome these limitations, interview and survey research can provide information not only on these issues but on long term plans of Canadian universities for responding to the competitive pressures of the MOOC platforms. The globalization of PSE has made it possible for any Ontarian to take micro-credentials or degrees (undergraduate and graduate) from his or her living room.

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Appendix A

DIGITAL FLATFORMS FOR OFFERING ACCREDITED UNIVERSITY CREDENTIALS	
AcademicEarth	Established in 2009 by Richard Ludlow, Chris Bruner and Liam Pisano • Non-profit with mission to provide highest quality lowest cost education to the world • Offers free 9000 courses from 200 top universities worldwide • offers numerous micro credentials and 90 Bachelors and Master degrees
edX	Established in 2012 by Harvard and MIT • Non-profit and open-source leading MOOC provider • Partners with more 160 universities worldwide • Offer Micro Bachelors, Micro Masters, Professional Certificates, Master's Degree, Executive Education
Coursera	Established in 2012 by some Stanford University professors • Main mission is to provide digital PSE services globally • POffers courses, micro-credentials, MasterTrack and bachelor and master degrees from world-class universities • Courses and industry professional certifications from tech companies.
Udacity	Established in 2011 as for-profit organization to train future workforce • Offers massive open online courses and micro-credentials • partners with tech companies to teach the critical tech skills that the companies are sourcing for in the workforce. • Partners with universities to provide college credits
FutureLearn	Established in December 2012 by Open University (UK) and SEEK Ltd; • Offers Massive Open Online Course (MOOC) learning. • Partners with 175 UK and international partners, universities ans companies • Offers specialist courses (ExpertTracks) Micro-credentials and degrees

Appendix B

DIGITAL PLATFORMS OFFERING PSE COURSES MICRO-CREDENTIALS & DEGREES	
Study.com	Founded in May 2002, offering MOOCS and degrees • Offers both customized adaptive learning and tools for teacher • Transferable credits to over 1500+ partner universities and colleges • Courses accredited by American Council on Education (ACE)
StraighterLine	Established in 2008, provides low-cost online bachelor's degree courses • Courses accredited by ACE for college credit purposes • Business, English, Health Sciences, Humanities, Languages, Mathematics, Science, Social Science, Technology • Transferrable credits to 130 partner universities and colleges
Sophia Learning	Founded in 2009, offers flexible, competency-based online courses • Courses accredited by ACE for transfer to colleges and universities. • Partners network of leading institutions colleges and universities offering flexible PSE degree pathways
KickStart Learning	Founded in 2007, offers degree courses • Provides personalized educational solutions and courses • Courses accredited by ACE • Courses transferable more than 2000 colleges and universities worldwide
Pearson Accelerated Pathways	Formally Lumerit Education (est. 2004) was acquired by Pearson Publishing founded in 1844 • Offers 66 self-paced or instructor-led courses in 50 PSE subject areas for more than 2000 universities and colleges • Learners must engage degree planning process to identify study major, college of interest, and map out online courses to guarantee credit transfer
Saylor.org	Founded in 2008, with mission to offer free of cost and open online degree courses to all who want to learn at their own pace and schedule. • Offers 100 courses accredited by ACE and National College Credit Recommendation Service (NCCRS) • Partnership network with leading universities and colleges
Outlier.org	Founded in 2018, mission to increase access to quality PSE at reduced cost • Offers online college-level courses • Collaboration of New York and Pennsylvania universities
OnlineDegree.com	Established in June 2016, mission affordable university degrees • offers courses from participating accredited universities • courses accredited by NCCRS • students to take up to 15 free college-level courses that covers variety of topics such as Computer Science, Psychology, Robotics, etc. • offers micro-credentials to students completing with a passing grade of 70% or above.
Statistics.com	Founded 2002, The Institute for Statistics Education • Certified by The State Council of Higher Education for Virginia • Offers micro-credentials, bachelor and master degrees is Data Science in collaboration with universities • Offers courses introductory and advanced statistics courses using software such as R, Python and SQL • 34 of its courses are accredited by ACE • 42 of its courses accredited by Institute for Operations Research and the Management Sciences

Appendix C

Course	# of credits	ACE	NCCRS
Accounting 101: Financial Accounting		✓	✓
Accounting 102: Intro to Managerial Accounting		✓	✓
Accounting 201: Intermediate Accounting I	3 LD/UD	✓	✓
Accounting 202: Intermediate Accounting II	3 LD/UD	✓	✓
Accounting 301: Applied Managerial Accounting		✓	✓
Accounting 302: Advanced Accounting		✓	✓
Accounting 303: Cost Accounting		✓	✓
Analytics 103: Intro to Relational Databases & SQL		✓	
Art 103: History of Western Art I	3	✓	✓
Art 104: History of Western Art II	3	✓	
Astronomy 101: Intro to Astronomy	3	✓	✓
Biology 101: Intro to Biology		✓	✓
Biology 101L: Intro to Biology with Lab	4	✓	✓
Biology 102: Basic Genetics		✓	✓
Biology 103: Microbiology		✓	
Biology 105: Anatomy & Physiology		✓	
Biology 106: Pathophysiology		✓	
Business 100: Intro to Business		✓	✓
Business 101: Principles of Management		✓	✓
Business 102: Principles of Marketing		✓	✓
Business 103: Introductory Business Law		✓	✓
Business 104: Information Systems and Computer Applications		✓	✓
Business 105: Labor Relations		✓	✓
Business 106: Human Resource Management		✓	✓
Business 107: Organizational Behavior		✓	✓
Business 108: Business Ethics		✓	✓
Business 109: Intro to Computing		✓	✓
Business 110: Business Math		✓	✓
Business 111: Principles of Supervision		✓	
Business 113: Business Communication		✓	✓
Business 120: International Business		✓	✓
Business 121: Introduction to Entrepreneurship		✓	✓
Business 202: Introduction to E-Commerce	3	✓	✓
Business 203: Introduction to Retail Merchandising	3	✓	
Business 209: Mentoring & Leadership Development in the Workplace			✓

Appendix C

Course	# of credits	ACE	NCCRS
Business 212: Business Statistics		✓	
Business 302: Foundations of Leadership		✓	✓
Business 303: Management Information Systems	3	✓	✓
Business 304: Leading Organizational Change	3	✓	✓
Business 305: Leadership Communication		✓	✓
Business 306: Strategic Human Resources Management		✓	✓II
Business 307: Leadership & Organizational Behavior		✓	✓
Business 308: Globalization & International Management		✓	✓
Business 309: Digital Marketing & Advertising		✓	✓
Business 310: Advanced Business Ethics	3	✓	✓
Business 311: Project Management		✓	✓
Business 312: Advanced Operations Management		✓	✓
Business 313: Organizational Communication	3	✓	✓
Business 314: Employment Law		✓	✓
Business 315: Logistics & Supply Chain Management		✓	✓
Business 318: Management Ethics	3	✓	
Business 319: Negotiations & Conflict Management	3	✓	✓
Business 321: Small Business Management	3	✓	✓
Business 323: Organizational Theory		✓	✓
Business 324: Managerial Communication	3	✓	✓
Business 325: Union & Labor Relations	3	✓	✓
Business 327: Retail Strategy	3	✓	✓
Chemistry 101: General Chemistry		✓	✓
Chemistry 112L: Chemistry II with Lab		✓	
Communications 101: Public Speaking		✓	✓
Communications 102: Interpersonal Communication		✓	✓
Communications 120: Presentation Skills in the Workplace			✓
Communications 301: Diversity and Intercultural Communication		✓	
Computer Science 102: Fundamentals of Information Technology	3	✓	✓
Computer Science 103: Computer Concepts & Applications	3	✓	
Computer Science 105: Introduction to Operating Systems		✓	
Computer Science 106: Introduction to Linux		✓	
Computer Science 107: Database Fundamentals		✓	
Computer Science 108: Introduction to Networking		✓	
Computer Science 109: Introduction to Programming		✓	

Appendix C

Course	# of credits	ACE	NCCRS
Computer Science 110: Introduction to Cybersecurity		✓	
Computer Science 111: Programming in C		✓	
Computer Science 112: Programming in C++		✓	
Computer Science 113: Programming in Python		✓	
Computer Science 114: Programming in R		✓	
Computer Science 115: Programming in Java		✓	
Computer Science 201: Data Structures & Algoriithms		✓	
Computer Science 202: Network and System Security		✓	
Computer Science 203: Defensive Security		✓	
Computer Science 204: Database Programming		✓	
Computer Science 220: Fundamentals of Routing and Switching		✓	
Computer Science 302: Systems Analysis & Design	3	✓	
Computer Science 303: Database Management	3	✓	
Computer Science 304: Network System Design		✓	
Computer Science 305: Operating Systems		✓	
Computer Science 306: Computer Architecture		✓	
Computer Science 307: Software Engineering		✓	
Computer Science 310: Current Trends in Computer Science & IT		✓	
Computer Science 311: Artificial Intelligence		✓	
Computer Science 320: Digital Forensics		✓	
Computer Science 321: Ethical Hacking		✓	
Computer Science 323: Wireless & Mobile Networking		✓	
Computer Science 330: Critical Infrastructure Security		✓	
Computer Science 331: Cybersecurity Risk Analysis Management		✓	
Computer Science 332: Cybersecurity Policies and Management		✓	
Computer Science 335: Mobile Forensics		✓	
Computer Science 336: Network Forensics		✓	
Criminal Justice 101: Intro to Criminal Justice		✓	✓
Criminal Justice 104: Introduction to Criminology		✓	✓
Criminal Justice 106: Forensic Science	3	✓	✓
Criminal Justice 107: Criminal Law	3	✓	✓
Criminal Justice 301: White Collar Crime	3	✓	
Criminal Justice 305: The Juvenile Justice System	3	✓	✓
Criminal Justice 306: Research Methods in Criminal Justice	3	✓	
Criminal Justice 381: Victimology	3	✓	

Appendix C

Course	# of credits	ACE	NCCRS
Earth Science 101: Earth Science		✓	✓
Earth Science 104: Intro to Meteorology	3	✓	
Economics 101: Principles of Microeconomics		✓	✓
Economics 102: Macroeconomics		✓	✓
Education 101: Foundations of Education		✓	✓
Education 103: Classroom Management		✓	✓
Education 104: Differentiated Instruction		✓	✓
Education 105: Special Education History & Law		✓	✓
Education 106: Introduction to Early Childhood Education		✓	✓
Education 210: Technology in the Classroom	3	✓	
Education 211: Teaching Elementary Math		✓	
English 101: English Literature		✓	✓
English 102: American Literature		✓	✓
English 103: Analyzing and Interpreting Literature		✓	✓
English 104: College Composition I		✓	✓
English 105: College Composition II		✓	✓
English 301: Non-Western Literature		✓	
English 305: Advanced Technical Writing		✓	✓
English 310: Short Stories	3	✓	✓
Environmental Science 101: Environment and Humanity		✓	✓
Finance 101: Principles of Finance		✓	✓
Finance 102: Personal Finance		✓	✓
Finance 104: Financial Management		✓	✓
Finance 301: Corporate Finance	3	✓	✓
Finance 302: International Finance		✓	
Finance 303: Financial Institutions & Markets		✓	
Finance 304: Security Analysis & Portfolio Management		✓	
Finance 305: Risk Management		✓	
Finance 306: Small Business Finance		✓	
Genetics 101: Intro to Genetics		✓	✓
Geography 101: Human & Cultural Geography		✓	✓
Geology 101: Physical Geology		✓	✓
Geometry 101: Intro to Geometry		✓	✓
Health 101: Principles of Health		✓	✓
Health 103: Ethical & Legal Issues in Healthcare		✓	✓

Appendix C

Course	# of credits	ACE	NCCRS
Health 301: Health Services Policy		✓	
Health 302: Health Services Policy		✓	
Health 303: Healthcare Organization & Management		✓	
Health 305: Healthcare Finance & Budgeting		✓	
Health 307: Healthcare Delivery Systems		✓	
Health 308: Healthcare Quality & Outcome Measurement		✓	
Health 309: Healthcare Informatics		✓	
Health 310: Human Resource Management in Healthcare		✓	
History 100: Western Civilization from Prehistory to Post-WWII	3	✓	
History 101: Western Civilization I		✓	✓
History 102: Western Civilization II		✓	✓
History 103: US History I		✓	✓
History 104: US History II		✓	✓
History 105: US History from Settlement to Present Day	3	✓	
History 106: The Civil War and Reconstruction		✓	✓
History 108: History of the Vietnam War		✓	✓
History 301: Historiography & Historical Methods		✓	
History 306: The American Civil War Era		✓	✓
History 307: American Civil Rights Movement	3	✓	
History 308: Causes and Effects of the Vietnam War		✓	✓
History 309: War & American Society	3	✓	
History 311: The Holocaust & World War II	3	✓	✓
Hospitality 101: Introduction to Hospitality		✓	✓
Hospitality 105: Introduction to the Tourism & Travel Industry		✓	✓
Hospitality 301: Hospitality Marketing		✓	✓
Hospitality 304: Hotel & Lodging Management & Operations		✓	✓
Hospitality 309: Food & Beverage Service & Operations		✓	
Humanities 101: Intro to the Humanities		✓	✓
Library Science 101: Information Literacy	3	✓	✓
Marketing 301: Marketing Research	(3 ACE/4 NCCRS)	✓	✓
Marketing 302: Consumer Behavior	(3 ACE/4 NCCRS)	✓	✓
Marketing 303: Global Marketing	3	✓	
Marketing 306: Principles of Selling	3	✓	
Marketing 308: Applied Marketing	3	✓	✓
Math 101: College Algebra		✓	✓

Appendix C

Course	# of credits	ACE	NCCRS
Math 102: College Mathematics		✓	✓
Math 103: Precalculus		✓	✓
Math 104: Calculus		✓	✓
Math 105: Precalculus Algebra		✓	✓
Math 107: Quantitative Literacy		✓	✓
Math 108: Discrete Mathematics		✓	
Math 97: Introduction to Mathematical Reasoning		✓	
Nursing 301: Nursing Informatics		✓	✓
Nutrition 101: Science of Nutrition		✓	✓
Philosophy 101: Intro to Philosophy		✓	
Philosophy 102: Ethics in America	3	✓	✓
Philosophy 103: Ethics - Theory & Practice	3	✓	✓
Physics 101: Intro to Physics		✓	✓
Physics 111: Physics I	3	✓	✓
Physics 112: Physics II	3	✓	✓
Political Science 101: Intro to Political Science	3	✓	✓
Political Science 102: American Government		✓	
Political Science 103: Comparative Politics	3	✓	
Psychology 101: Intro to Psychology		✓	✓
Psychology 102: Educational Psychology		✓	✓
Psychology 103: Human Growth and Development		✓	✓
Psychology 104: Social Psychology		✓	✓
Psychology 105: Research Methods in Psychology		✓	✓
Psychology 106: Abnormal Psychology		✓	✓
Psychology 107: Life Span Developmental Psychology		✓	✓
Psychology 108: Psychology of Adulthood and Aging		✓	✓
Psychology 301: Industrial/Organizational Psychology		✓	✓
Psychology 302: Cognitive Psychology	3	✓	
Psychology 306: Advanced Abnormal Psychology	3	✓	
Psychology 310: Psychology of Personality	3	✓	✓
Psychology 311: Physiological Psychology	3	✓	
Psychology 312: History and Systems of Psychology	3	✓	✓
Psychology 315: Psychology of Motivation	3	✓	
Psychology 316: Advanced Social Psychology	3	✓	
Religion 101: Intro to World Religions		✓	✓

Appendix C

Course	# of credits	ACE	NCCRS
Science 101: Intro to Natural Sciences		✓	✓
Science 102: Principles of Physical Science		✓	✓
Social Science 108: Ethics in the Social Sciences	3	✓	
Sociology 101: Intro to Sociology		✓	✓
Sociology 103: Foundations of Gerontology			✓
Sociology 305: Sociology of Work	3	✓	✓
Spanish 101: Beginning Spanish		✓	✓
Spanish 102: Intermediate Spanish		✓	✓
Spanish 105: Spanish for the Workplace		✓	✓
Statistics 101: Principles of Statistics		✓	✓

Appendix D

ACCREDITING BODIES	
US Department of Education	• The US Department of Education reviews and recognizes accreditation bodies that serve the role of establishing criteria and enforcing implementation of quality standards in post-secondary institutions. • Accrediting bodies in the US are private associations that develop criteria and, upon request from a post-secondary institution, conduct evaluations to assess whether or not they are met. • A complete list of accrediting agencies available in Table 1.
Council of Higher Education Accreditation (CHEA)	• Established in 1996 • A non-governmental association of degree-granting US colleges and universities • Reviews accrediting organizations for quality and provides recognition • The 'primary national voice for accreditation and quality assurance to the US congress and USDE' as well as 'to the general public, opinion leaders, students and families.' [ref below]
American Council on Education (ACE)	• Established in 1918 • According to the US Department of State, ACE is 'the major coordinating body for the nation's higher education institutions [that] seeks to provide leadership and a unifying voice on key higher education issues and to influence public policy through advocacy, research, and program initiatives.' [ref below]
National accrediting bodies	• Less stringent • 'Generally applied to institutions that offer programs with fewer general education or liberal arts requirements and are more vocational in nature' [ref] • Credit do not transfer easily relative to credit from regionally accredited institutions

Regional accrediting bodies	• Higher transferability of credits relative to those obtained in nationally accredited institutions.
	• The most highly regarded and recognized regional accrediting agencies are:
	  • Higher Learning Commission (est. 1895)
	  • Middle States Commission on Higher Education (est. 1887)
	  • New England Commission of Higher Education (est. 1885)
	  • Northwest Commission on Colleges and Universities (est. 1917)
	  • Southern Association of Colleges and Schools, Commission on Colleges (est. 1895)
	  • WASC Senior College and University Commission (est. 1962)
	  • Western Association of Schools and Colleges, Accrediting Commission for Community and Junior Colleges (est. 1962)

CHEA (2019). CHEA at a Glance. Source: https://docs.google.com/viewerng/viewer?url=https://www.chea.org/sites/default/files/pdf/CHEA-At-A-Glance_0.pdf
US Department of State (n.d.). American Council on Education. Source: https://2001-2009.state.gov/p/io/unesco/members/48655.htm
University of New England (2019). UNE Accreditation: Regional vs. National. Source: https://online.une.edu/blog/regional-vs-national-accreditation-which-is-better/

Appendix E: Illustration of Credit Transfer Policies of a Sample of Canadian Universities (CAPE - Caribbean Advanced Proficiency Examination; GCE - General Certificate of Education; CSA - Credit by Special Assessment)

Credit Rules	U Toronto	U Alberta	U McGill	U York	U Manitoba	U British Columbia	U Dalhousie
Maximum number transferrable for Undergraduate degree	2nd year applicants should have 30 credits . 3rd year applicants should have 54-60 credits	Maximum of 60 transfer credits (*60) including no more than *42 in junior level courses	Minimum of 60 credits to be earned at McGill	30 credits and at least half (50%) of the course credit must be completed at York University to obtain Bachelor degree	Maximum of two years (60 credit hours) of credits	No more than 60 credits of transfer credit, or 50% of required program credits, are allowed in any program, and in some programs the maximum may be less	60 Credit hours
Minimum grade	C	----	C	C	----	C	C
Regional accredited PSE institution	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Accredited examinations	AP, IB, GCE, CAPE, French Bacc	AP, IB, GCE A Levels, CSA	CEGEP, AP, IB, French Bacc, IB,	CAPE, AP, GCE A-Levels, IB, CEGEP, French Bacc	AP and IB	AP, IB, A -Level final exams	AP, CAPE, GCE A Level, French Bacc, IB
Accredited Job Training Courses	-------	-------	-------	-------	-----	------	------
Accredited courses from digital platforms	-------	-------	-------	-------	------	------	------
Non-Accredited courses from digital platforms	------	------	------	-------	------	------	-----
Accredited micro credentials from digital platforms	------	------	------	-------	------	------	-----
Non-Accredited micro credentials from digital platforms	------	-------	------	-------	------	------	------
Excluded subjects	**-------**	**------**		**-------**	**------**	**------**	**-----**
Professional Certifications	CompTIA Security+, Network+, Linux+, Cloud+						

Appendix F: College Board College Level Exam Programs

CLEP® Credit-Granting Recommendations (Effective June 2019)	
Subject	Credits
Business	
Financial Accounting	3
Information Systems	3
Introductory Business Law	3
Principles of Management	3
Principles of Marketing	3
Composition and Literature	
American Literature	3
Analyzing and Interpreting Literature	3
College Composition	6
College Composition Modular	3
English Literature	3
Humanities	3
World Languages	
French Language, Level 1 Proficiency	6
Level 2 Proficiency	9
German Language, Level 1 Proficiency	6
Level 2 Proficiency	9
Spanish Language, Level 1 Proficiency	6
Level 2 Proficiency	9
Spanish with Writing, Level 1 Proficiency	6
Level 2 Proficiency	12

Appendix F: College Board College Level Exam Programs

CLEP® Credit-Granting Recommendations (Effective June 2019)	
Subject	Credits
History and Social Sciences	
American Government	3
History of the United States I: Early Colonization to 1877	3
History of the United States II: 1865 to the Present	3
Human Growth and Development	3
Introduction to Educational Psychology	3
Introductory Psychology	**3**
Introductory Sociology	3
Principles of Macroeconomics	3
Principles of Microeconomics	3
Social Sciences and History	6
Western Civilization I: Ancient Near East to 1648	3
Western Civilization II: 1648 to the Present	3
Science and Mathematics	
Biology	6
Calculus	4
Chemistry	6
College Algebra	3
College Mathematics	6
Natural Sciences	6
Precalculus	3

Appendix G: Credly -ACE Transcript

Acclaim by Credly

OFFICIAL TRANSCRIPT - ISSUED ON 4 NOVEMBER 2020

Fake Student

ID#: 782d8259-47d0-4731-9494-175b7f7f0375

fake.student.656@gmail.com

www.youracclaim.com/users/fake-student

Comparative Worldviews (PHIL 113)

Issued by: Lumerit Education

Issued to: Fake Student

Issued on: 6 February 2020

Description

The course objective is to explore the idea of worldview, and the various worldviews shaping the contemporary world including secularism, New Age, Christianity, Islam, and postmodernism.

Course Number: COLP-0001

Total Credits: 3

Grade: Pass

Credit Recommendation

- 3 semester hours in humanities, philosophy, or religion. in the upper-division undergraduate category

Javascript

Issued by: Lincoln Technologies

Issued to: Fake Student

Issued on: 8 September 2020

Description

Badge holders have demonstrated through self-directed project-based learning, a competence in the foundations of JavaScript, algorithms and data structures. Javascript is a high-level programming language that all modern web browsers support. It is also one of the core technologies of the web, along with HTML and CSS. Students who achieve a score between 165 - 174 on the GED® Science test may be waived from developmental courses in that subject at the postsecondary level.

Appendix G: Credly -ACE Transcript

Transcript Legend

American Council on Education Endorsement: Courses that carry an ACE endorsement of recommended college credits or competencies are designated by the ACE logo in the left margin. The following policies apply only to ACE-endorsed courses within the transcript.

Name: Legal name as entered by the student at the time of transcript request. Because students may complete courses from multiple organizations, each course also includes the name under which the credential was issued for tracking and verification if necessary.

Credly ID#: Due to a system of record change in 2019, student ID numbers may not match numbers on older ACE transcripts

Issued on: The date when the student completed the associated course.

Courses: ACE-endorsed courses include a unique identifier that ACE assigns to courses and examinations. The letter prefix designates the organization providing the course. Duplicates may appear if a student took and passed the course more than once.

Credit Recommendations: Recommendations for college credit are designated in semester hour units (SH). Each recommendation includes a total number of SH credits recommended and a breakdown of one or more subject areas and credit levels. Levels for which recommendations are issued include Vocational/Certificate, Lower Division (100-200 level courses), Upper Division (300-400 level courses), and Graduate (500+ level courses).

Grade: ACE-endorsed courses are only included on this official transcript if the student achieved a passing grade. ACE-endorsed courses meet the following minimum grading requirements: Students must earn a minimum "C" grade for Vocational/Certificate, Lower Division, and Upper Division credit and a minimum "B" grade for Graduate level credit.

Additional Resources: Additional information on ACE-endorsed courses, such as learning outcomes, assessment methods, etc. can be found in the National Guide to College Credit for Workforce Training at https://www2.acenet.edu/credit/. Military training and occupations that carry college credit recommendations can be found at The Guide to Evaluation of Educational Experiences in the Armed Services: https://www.acenet.edu/Programs-Services/Pages/Credit-Transcripts/military-guide-online.aspx

The American Council on Education's College Credit Recommendation Service (CREDIT ®) connects workplace learning with colleges and universities by helping adults gain access to academic credit for formal courses and examinations taken outside traditional degree programs. ACE is the national leader in the evaluation process for education and training obtained outside the classroom.

ACE CREDIT® reviews are conducted by experienced college and university faculty who assess the content, scope, and rigor of an organization's courses or examinations and make appropriate recommendations for comparable college credit and competencies achieved by students. For more information on processes and standards for ACE CREDIT® reviews, visit https://www.acenet.edu/Programs-Services/Pages/Credit-Transcripts/Colleges-Universities.aspx

Please address inquiries to American Council on Education College Credit Recommendation Service:
One Dupont Circle NW, Suite 250, Washington DC, 20036 Email: CREDIT@acenet.edu Phone: 1-866-205-6267

For technical support, visit the Acclaim Help Center: https://support.youracclaim.com/hc/en-us
This document cannot be released to a third party without written consent from the student. Alteration of this document may be a criminal offense.

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U Maryland CP	U Houston	U Texas at Dallas	U Texas A&M	U TexasTech	U Minnesota	Georgia Tech
Maximum number transferrable for Undergraduate degree	90 credits	66 credits	69 credits from a 2-year and 90 credits from a 4-year.	36 semester hours of 300 and/ or 400-level coursework	90 credits for general studies, and 72 credits for community college	30 Credits	36 credits
Minimum grade	C	C	C	C	C	D	C
Regional accredited PSE institution	MSCHE	SACSCOC	SACSCOC	SACSCOC	SACSCOC	HLC	SACSCOC
Accredited examinations	AP, CLEP, DANTES	AP, CLEP, DANTES, IB, SAT	AP, CLEP, IB	CLEP	AP, CLEP, IB, SAT	CLEP, AP, IB, GCE A-Level, DLI	AP, IB, SAT, GCE A-Level
Accredited Job Training Courses	ACP	----	----	----	------	------	-------
Accredited courses from digital platforms	Yes	Yes	Yes OnlineDegree.com, Study.com	Yes - study.com, saylor.org onlinedegree.com, straighterline	Yes, Study.com	Yes	-------
Non-Accredited courses from digital platforms	Exam Required	-------	----	-----	------	------	-------
Accredited micro credentials from digital platforms	Yes, Micro-Bachelor and Micro-Master	No	No	Yes, Micro credentials	Yes, Micro credentials	Yes, Micro Track	Yes, Micro Master
Non-Accredited micro credentials from digital platforms	Exam required	Final exam required	No	----	Exam Required	Exam Required	-------
Excluded subjects	Engineering, Medicine, Health Sciences	-------	Vocational, Developmental or Remedial Studies	English	----	-------	Lab, Economics, Mathematics & CLEP, Vocational, remedial courses
Professional Certifications	CompTIA, APICS,	CompTIA A+, CCNA, COBIT	----	CompTIA A+	----	UX/UI,	No

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Credit Rules	U PennState	U CaliforniaS	U Michigan	U Mississippi	U Missouri	U NewHamp	U Montana
Maximum number transferrable for Undergraduate degree	4 credit units for 1 summer	60 credits	60 credits; 90 credits for cross-campus transfer, 12 credit for online	63 credit from 2-years institution, 90 from 4-years institution	64 credits	96 for BSc, 48 for Associate.	No maximum credit limit from 2- or 4-years institution
Minimum grade	C or (B for Chemistry)	C	C	D or higher.	C	C	C
Regional accredited PSE institution	MSCHE	WSCUC	HLC	SACSCOC	HLC	NECHE	NWCCU
Accredited examinations	AP, IB, GCE A-Level.	AP, CLEP, IB	AP, CLEP, IB, A-Level	AP, CLEP, IB, CI ASE, MC	AP, CLEP, DC, DEC	AP, CLEP	AP, IB, CLEP, DE, GAC, PLA.
Accredited Job Training Courses	-----	PaCE	-----	-----	-----	Yes	Yes
Accredited courses from digital platforms	Yes	------	Yes	No	Yes, Study.com	Yes, Study.com	Yes, Futurelearn, Study.com
Non-Accredited courses from digital platforms	Exam Required	------	Exam Required	No	Exam Required	Exam Required	No
Accredited micro credentials from digital platforms	Yes	No	Yes, Offers Micro credential, Micro Master, Master Track™	No	No	No	Yes, Offers Micro-credentials
Non-Accredited micro credentials from digital platforms	Exam required	-------	Exam required	No	------	No	No
Excluded subjects	College Level Coursework	-------	--------	-------	Technical, vocational, or remedial courses	Duplicate high-school-level Algebra	remedial, technical, or continuing education courses or from non-accredited schools
Professional Certifications	-------	-------	Nil	No	No	CCNA, CompTIA A+	CCNA, CompTIA A+

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Credit Rules	U Illinois	U IllinoisW	U IllinoisSC	U IllinoisN	Georgia SU	U Georgia	U West Georgia
Maximum number transferrable for Undergraduate degree	60 credits	60 credits	60 credits	90 credits and 24 credit for freshmen	30 credits	65 credit	90 credits
Minimum grade	C	C	C	C	C	C	C
Regional accredited PSE institution	HLC	HLC	HLC	HLC	SACSCOC	SACSCOC	SACSCOC
Accredited examinations	AP, CLEP, IB	AP, CLEP, IB	AP, CLEP, IB, DANTES/DSST	AP, CLEP, IB,	AP, IB, CLEP, DANTES	AP, CLEP, DANTES, IB, Dual Enrolment	DANTES, AP, IB, CLEP
Accredited Job Training Courses	----	----	-----	-----	----	-----	Yes
Accredited courses from digital platforms	Yes	----	----	No	----	-----	----
Non-Accredited courses from digital platforms	----	No	Exam Required	Exam Required	----	-----	----
Accredited micro credentials from digital platforms	Yes, Master Tracks, Micro credentials	No	Micro credential with Digital Badges	No	No	-----	No
Non-Accredited micro credentials from digital platforms	----	No	No	No	No	-----	Yes from ed2go.com
Excluded subjects	----	----	----	----	Non-credit bearing courses through ed2go.com	-----	----
Professional Certifications	CompTIA A+	----	----	----	----	-----	-----

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Credit Rules	U Florida	U FloridaS	U Florida State	U FloridaC	U Rhode Island	RI College	TESU
Maximum number transferrable for Undergraduate degree	60 credits	60 credits	60 credits	60 credits	60 credits from a 2-year, and 90 credits from 4-year institutions	24 credit for freshmen and 75 credits for other students	90 credits for BSc, 45 Credit for Associate
Minimum grade	D	C	C	C	C	C	C
Regional accredited PSE institution	SACSCOC	SACSCOC	SACSCOC	SACSCOC	NECHE	NECHE	MSCHE
Accredited examinations	AP, IB, CLEP, AICE	AP, IB, CLEP, AICE, GCE	AP, IB, CLEP, AICE	AP, CLEP, IB, AICE	CLEP, AP, IB, Excelsior/ UExcel, DSST	CLEP, DANTES	AP, CLEP, DANTES, IB, DLI, UExcel
Accredited Job Training Courses	----	----	----	----	----	----	Yes
Accredited courses from digital platforms	----	----	----	----	Study.com, straighterLine,	Study.com	Yes, Saylor, Straighterline
Non-Accredited courses from digital platforms	Yes	----	----	----	----	----	Exam Required
Accredited micro credentials from digital platforms	No	No	No	No	Yes, Microcredentials,	No	Yes, MicroBachelor
Non-Accredited micro credentials from digital platforms	No	No	No	No	----	No	No
Excluded subjects	-----	----	----	----	----	Engineering	--------
Professional Certifications	-----	----	----	----	----	----	CompTIA, CCNA, Microsoft, Oracle, etc

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Credit Rules	U NArizona	U Arizona State	U Arizona	U SIndiana	U Purdue	U IndianaS	U Vincennes
Maximum number transferrable for Undergraduate degree	90 credits	64 credits	64 credits	64 credits	32 credits	90 credits	45 credit
Minimum grade	C	C	C	C	C	C	C
Regional accredited PSE institution	HLC	HLC	HLC	HLC	HLC-NCA	HLC	HLC
Accredited examinations	AP, CLEP, DSST, IB, CIE, Challenge Exams	AP, CLEP, DANTES, IB, PE, CE	AP, CLEP, IB, DSST, CE	AP, CLEP, IB	CLEP, AP, IB, A-Level, DSST, UExcel, PE,	AP, CLEP, DSST, Excelsior College Exams	AP, CLEP, DSST, SAT, Excelsior College Exams
Accredited Job Training Courses	Online courses	Yes – Online Accredited courses	----	---	Yes	----	-----
Accredited courses from digital platforms	Study.com, saylor.org	Yes, – study.com,	Study.com, saylor.org, straighterline	----	Yes, Straighterline	Study.com	Study.com
Non-Accredited courses from digital platforms	----	Exam Required	Exam Required – Coursera,	Exam Required	Exam Required	----	----
Accredited micro credentials from digital platforms	Yes, micro credential with digital badge	Yes, Micro Master, Micro Bachelor, Master Track	Yes, Micro credentials	No	Offers Micro credential, Micro Master	No	No
Non-Accredited micro credentials from digital platforms	-----	Exam required	-----	-----	-------	-----	No
Excluded subjects	-----	Vocational and remedial courses, GDE test	Remedial, vocational, technical, personal development course	-----	Remedial, Developmental courses	Mechanical Engineering, Remedial, audited, non-credit courses	---
Professional Certifications	----	----	----	-----	CompTIA, Microsoft, Cisco, AWS	-----	----

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Credit Rules	U Iowa	U IowaState	U Northern Iowa	UC San Diego	U CaliforniaSN	U CalStateLA	U ColumbiaD
Maximum number transferrable for Undergraduate degree	60 credits	65 credits for a 2-year; no limit for 4-year institutions	65 credits	70 credits	70 credits	70 credits	90 credits
Minimum grade	C	C	C	C	C	C	C
Regional accredited PSE institution	HLC	HLC	HLC	WSCUC	WSCUC	WSCUC	MSCHE
Accredited examinations	AP, CLEP, IB, Cambridge Exams	AP, CLEP, GAC, A-Level, IB, Departmental Exam	AP, CLEP, IB, Dual Enrollment	Ap, CLEP, IB	AP, CLEP, IB, Challenge Examination, NCLEX	AP, DANTES, CLEP	AP, CLEP, IB, SAT II
Accredited Job Training Courses	----	Computing Applications Certificate	Distance and Continuing Studies	----	----	----	----
Accredited courses from digital platforms	Yes, study.com	Study.com, Saylor.org	Study.com	Study.com Saylor.org	Study.com, OnlineDegree.com	Study.com	----
Non-Accredited courses from digital platforms	----	----	Exam Required	Exam Required	----	----	-----
Accredited micro credentials from digital platforms	No	No	No	Yes, Micro Master	No	No	No
Non-Accredited micro credentials from digital platforms	No	No	No	----	----	No	No
Excluded subjects	----	----	----	-----	----	----	----
Professional Certifications	----	----	CPA	-----	----	----	----

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Credit Rules	U Guam	U HawaiiM	U HawaiiMC	U HawaiiH	U HawaiiW	U Louisiana	U LousianaSE
Maximum number transferrable for Undergraduate degree	30 credits	60 credits	30 credits	24 credits	21 credits	24 credits	60 credits
Minimum grade	C	a grade of D (not D-) or better	C	C	D or (better)	C	C
Regional accredited PSE institution	WASC	WSCUC	WASC	WASC	WASC	SACSCOC	SACSCOC
Accredited examinations	AP, CLEP, IB	AP, CLEP, IB, Military Credit	AP, CLEP, IB, Military credit	AP, CLEP, IB, Credit by Institutional exam	AP, CLEP, IB, Military Service Courses	AP, CLEP, Dual Enrollment, and military credit.	AP, CLEP,
Accredited Job Training Courses	----	----	---	Online Distance Learning Courses	Online Distance Learning Courses	----	----
Accredited courses from digital platforms	Yes, Study.com	Yes, Study.com	No	----	----	Yes, Study.com, OnlineDegree.com Straighterline	Yes, ed2go.com
Non-Accredited courses from digital platforms	-----	----	----	----	----	Military Courses	-----
Accredited micro credentials from digital platforms	-----	No	No	No	No	No	Micro credentials
Non-Accredited micro credentials from digital platforms	-----	No	No	No	No	No	Micro credentials
Excluded subjects	----	----	----	----	Remedial or developmental Courses	Vocational, special program, or business schools	-----
Professional Certifications	CompTIA A+ through ed2go.com	----	----	----	COMPTIA, CCNA	----	Courses through ed2go.com

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Credit Rules	U Southern NO	U New Orleans	U Baltimore	U Coppin State	U MarylandGC	U MichiganN	U MichiganC
Maximum number transferrable for Undergraduate degree	93 credits for 4-year and 64 credit for 2-year institutions	60 credits	63 credits from community college, 70 from 4-year institutions	70 credits from community college and 90 from 4-year institutions	90 credits from 4-years institution and 70 credits from 2-year community colleges	90 credits	60 credits
Minimum grade	C	C	C	C	C	C	C
Regional accredited PSE institution	SACSCOC	SACSCOC	MSCHE	MSCHE	MSCHE	HLC	HLC
Accredited examinations	AP, CLEP, IB	AP, IB, CLEP, and DSST exams	AP, CLEP, IB, DSST	AP, CLEP, DANTES/ DSST, IB, Challenge Exams, SAT, UExcel	Proctored Exams, CLEP, DSST, AP, Pearson VUE, CE, Excelsior College Exams, IB, Challenge Exams	AP, CLEP, IB	AP, CLEP, IB
Accredited Job Training Courses	-----	-----	-----	----	----	----	-----
Accredited courses from digital platforms	-----	Yes, Study.com	Study.com OnlineDegree.com	----	Study.com Saylor.org, Straighterline.com OnlineDegree.com	Study.com OnlineDegree.com	Study.com
Non-Accredited courses from digital platforms	-----	ACE courses – (Work, Military, government, industry)	Exam required - Military Course credits	ACE courses from Military Transfer Credit (Military)	Exam Required	----	----
Accredited micro credentials from digital platforms	No	No	No	No	Micro Masters, Micro credentials,	No	No
Non-Accredited micro credentials from digital platforms	No	No	No	No	No	No	No
Excluded subjects	----	-----	----	----	----	Remedial, Religious courses	----
Professional Certifications	----	-----	----	----	CompTIA, Microsoft, Cisco	----	-----

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Credit Rules	U MichiganW	U Wyoming	U AlabamaT	U AlabamaBir	U Troy	U Auburn	U AlaskaFair
Maximum number transferrable for Undergraduate degree	60 credits from 2-year institutions	----	60 credits from a 2yr & 90 credits (rom a 4yr institution	2 Year: 60, 4 Year: 90	Up to 75% of a degree. 50% could be earn through credit by exams	96 quarter hrs (OR) 64 semester hrs	------
Minimum grade	C	D	C	------	Minimum of C	C	C-
Regional accredited PSE institution	HLC	HLC	SACSCOC	SACSCOC	SACSCOC	SACSCOC	NWCCU
Accredited examinations	AP, CLEP, IB	AP, DANTES, CLEP, IB	AP, CLEP, IB, GCE	AP, IB, AICE, CLEP DSST	DANTES, CLEP, AP, IB AICE	AP, CLEP, IB	CLEP, AP, IB, DANTES/ DSST
Accredited Job Training Courses	------	------	-------	-------	-------	-------	------
Accredited courses from digital platforms	Study.com	------	-------	-------	No	-------	No
Non-Accredited courses from digital platforms	ACE – Military Courses for Credit	ACE - Military Credit Courses of Credit	-------	-------	No	-------	EdX Courses
Accredited micro credentials from digital platforms	No	No	-------	No	No	-------	-------
Non-Accredited micro credentials from digital platforms	No	NO	-------	No	No	-------	-------
Excluded subjects	Courses from institution with accreditation issues or Duplicate courses	Remedial courses, vocational courses	--------	-------	-------	--------	-------
Professional Certifications	-------	-------	Project Management PMP	-------	--------	--------	-------

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Credit Rules	U AlaskaAnc	U Alaska SouthE	U ArkansasFay	U ArkansasS	U ArkansasLR	U ArkansasC	U ColoradoB
Maximum number transferrable for Undergraduate degree	-----	Minimum of 34 semester credit	Minimum of 30 upper-level hours	------	30 credit hours by examination and 15 by correspondence.	60 credit hours from 2-year institutions	-------
Minimum grade	C-	C- and D- (only from other U-Alaska campuses)	C	C	C i.e., up to 6hrs of courses with grade of D maybe transferable	C (maximum of 6hrs of credit with D grades)	C-
Regional accredited PSE institution	NWCCU	NWCCU	HLC	HLC	HLC	HLC	HLC
Accredited examinations	AP, CLEP, DSST U-Excel, IB	AP, CLEP, ACT/SAT, DSST, IB	AP, CLEP, IB	AP, CLEP, DANTES	AP, IB, ACT/SAT, Accuplacer, CLEP	AP, ACT/ SAT, CLEP, PAN	AP, CLEP, IB
Accredited Job Training Courses	------	------	-------	-------	--------	--------	-------
Accredited courses from digital platforms	No	No	No	No	--------	--------	Yes, Exam required
Non-Accredited courses from digital platforms	No	No	No	No	--------	--------	Yes, Exam required
Accredited micro credentials from digital platforms	No	No	No	-------	--------	--------	Yes, Exam required
Non-Accredited micro credentials from digital platforms	No	No	No	USAFI military service credits	--------	--------	Yes, Exam required
Excluded subjects	------	-------	Technical, vocational, remedial course work,	-------	--------	--------	Remedial, vocational, technical, religion, work experience courses.
Professional Certifications	------	-------		Microsoft, CompTia, Oracle, CISSP	--------	--------	--------

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Credit Rules	U MSDenver	U ColoradoS	U ColoradoN	U Connecticut	U Connecticut CS	U Connecticut SS	CharterOak SC
Maximum number transferrable for Undergraduate degree	64 from 2-year institutions, 90 from 4-year institutions.	64 credits	90 semester hrs	90 credits and minimum 30 credits in residence	--------	Minimum 30 credits at Southern	
Minimum grade	C-	C-	C-	C	C-	C-	D- or C in some courses
Regional accredited PSE institution	HLC	HLC	HLC	NECHE	NECHE	NECHE	NECHE
Accredited examinations	-------	--------	-------	---------	---------	---------	---------
Accredited Job Training Courses	AP, CLEP, DSST/ DANTES, IB	AP, IB, CLEP	AP, IB, CLEP, AICE	AP, IB, A-level, ECE	AP, CLEP, DANTES	AP, CLEP, DSST IB	CLEP, DSST, ECE TECEP.
Accredited courses from digital platforms	Exam required	Saylor Academy study.com, Sophia.org, StraighterLine	Exam required	-------	--------	--------	Saylor Academy study.com Sophia.org
Non-Accredited courses from digital platforms	Exam required	No	Exam required	-------	No	No	Exam required
Accredited micro credentials from digital platforms	Exam required	-------	Exam required	-------	No	No	Exam required
Non-Accredited micro credentials from digital platforms	Exam required	-------	Exam required	--------	No	No	Exam required
Excluded subjects	Vocational, career exploration, cooperative education, or practicum	Remedial or vocational/ technical in content	-------	--------	Developmental or basic course work	--------	--------
Professional Certifications	--------	-------	--------	--------	--------	--------	--------

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Credit Rules	U Delaware	U DelawareS	U BoiseState	U Idaho	U IdahoS	LewisClark SC	U EmporiaS
Maximum number transferrable for Undergraduate degree	-------	--------	Min 15 credits an assoicate degree. Min 30 upper division for a Bachelor degree	70 credits	-------	-------	Min 30 hours of 60 hours of course work from 4 year colleges must be from Emporia State
Minimum grade	C-	C	C	--------	C-	--------	C
Regional accredited PSE institution	MSCHE	MSCHE	NWCCU	NWCCU	NWCCU	NWCCU	HLC
Accredited examinations	AP, IB, CLEP, GCE A-levels, CAPE CPGE	AP, CLEP, DSST	AP, CLEP, DANTES, PEP	AP, CLEP, ACT/SAT, COMPASS,	AP, CLEP, DANTES	AP, IB, CLEP, DSST	CLEP, CEEB Cambridge exams
Accredited Job Training Courses	--------	--------	--------	--------	--------	--------	--------
Accredited courses from digital platforms	No	Study.com	--------	--------	--------	--------	--------
Non-Accredited courses from digital platforms	No	-------	--------	--------	--------	--------	--------
Accredited micro credentials from digital platforms	No	Yes	--------	--------	--------	--------	--------
Non-Accredited micro credentials from digital platforms	---------	----------	--------	--------	--------	--------	--------
Excluded subjects	---------	--------	--------	--------	--------	--------	--------
Professional Certifications	---------	CPS, CAP, PTC, NBCC	--------	--------	--------	--------	--------

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Credit Rules	U KansasS	U Kansas	U WichitaS	U Kentucky	U Louisville	U KentuckyW	U KentuckyN
Maximum number transferrable for Undergraduate degree	No Maximum	64 credits from 2-year institution.	Accepts all credits (except remedials) earned at accredited institutions	30 of the last 36 hours of program must be completed at the Uni of Kentucky	------	25% of minimum number of semester hours required by degree program	32 credits from military
Minimum grade	D, (C if foundation or pre-requisite course)	C-	D not accepted in some programs	D, & C required in some courses	D-, & C required in some courses	C required by some departments	D-
Regional accredited PSE institution	HLC	HLC	HLC	SACSCOC	SACSCOC	SACSCOC	SACSCOC
Accredited examinations	AP, IB, CLEP, DANTES	AP, IB, CLEP	AP, IB, CLEP DANTES/DSST	AP, IB	AP, CLEP, IB, DSST, Foreign Language Placement	AP, IB, CLEP	AP, CLEP
Accredited Job Training Courses	--------	--------	--------	--------	--------	--------	--------
Accredited courses from digital platforms	ACE for military	--------	--------	NCCRS and ACE recommendation for military credit	Exam Required	--------	if ACE recognized
Non-Accredited courses from digital platforms	--------	--------	--------	--------	Yes, through exam	--------	--------
Accredited micro credentials from digital platforms	--------	No	--------	No	Yes, through exam	--------	No
Non-Accredited micro credentials from digital platforms	--------	No	--------	--------	--------	--------	--------
Excluded subjects	Vocational, technical, remedial, devel-opmental courses	--------	Remedial Courses	--------	--------	--------	--------
Professional Certifications	--------	--------	--------	--------	--------	--------	CompTIA, Cisco, Oracle

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Credit Rules	U MaineO	U MaineS	U MaineA	U MaineF	U Massachusetts	U BridgewaterS	U SalemS
Maximum number transferrable for Undergraduate degree	15 credits from military	Minimum 30 of the last 45 credits must be earned	No Maximum	No Maximum	Minimum 30 semester credits must be completed at the University	69 credits from 2-year institutions, 90 credits from 4-year institutions	75 credits
Minimum grade	C-	C-	C-	C-	C-	C-	C-
Regional accredited PSE institution	NECHE	NECHE	NECHE	NECHE	NECHE	NECHE	NECHE
Accredited examinations	CLEP, AP, DSST, IB	AP, IB, CLEP DSST	CLEP, DSST, AP, NLN	-------	CLEP	AP, CLEP	AP, IB, A-Level, CLEP, DSST
Accredited Job Training Courses	-------	-------	-------	-------	-------	-------	-------
Accredited courses from digital platforms	Exam required	-------	Through recognized ACE courses	-------	Exam required	-------	Yes
Non-Accredited courses from digital platforms	Exam required	-------	-------	-------	Exam required	-------	Yes
Accredited micro credentials from digital platforms	Exam required	-------	-------	-------	Exam required	-------	Yes
Non-Accredited micro credentials from digital platforms	Exam required	-------	-------	-------	Exam required	-------	Yes
Excluded subjects	-------	-------	-------	-------	-------	-------	Internships, co-ops, and technical, vocational, or highly specialized courses
Professional Certifications	-------	-------	-------	-------	-------	-------	--------

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Credit Rules	U MassachusettsA	U NebraskaL	U NebraskaOm	U Nebraska	OmahaSC	U NevadaR	U NevadaLV
Maximum number transferrable for Undergraduate degree	75 credits from 2-year institutions, 30 credits must be completed at U	90 credits	64-66 credits	66 credits from 2-year colleges	64 from 2 year institutions	30 upper-division semester credits must be earned at U-NevadaR	60 non-traditional courses
Minimum grade	C-	C, Acceptability of grades C- or lower is determined by each college	C-	C	C-	D- (contingent upon overall GPA) Accepting D- for major Course is at the discretion of department	C (for major-specific courses)
Regional accredited PSE institution	NECHE	HLC	HLC	HLC	HLC	NWCCU	NWCCU
Accredited examinations	AP, IB, CLEP	AP, IB, A-Level, CLEP, DSST	AP, IB, CLEP	AP, CEEB, CLEP	--------	CBAPE, IB, CLEP, DSST, ECE, NLN,	AP, CLEP, DANTES
Accredited Job Training Courses	-------	-------	-------	-------	-------	--------	-------
Accredited courses from digital platforms	-------	ACE Accreditation Courses	-------	-------	-------	--------	--------
Non-Accredited courses from digital platforms	-------	-------	-------	-------	-------	--------	--------
Accredited micro credentials from digital platforms	-------	-------	-------	-------	-------	--------	--------
Non-Accredited micro credentials from digital platforms	-------	-------	-------	-------	-------	--------	--------
Excluded subjects	-------	-------	-------	-------	-------	Remedial, technical courses, life experience,	--------
Professional Certifications	-------	-------	-------	-------	-------	--------	--------

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Credit Rules	NevadaSC	GreatBasinC	U NewMexico	U NewMexicoS	U NewMexicoE	U NewMexico	U NCarolinaS
Maximum number transferrable for Undergraduate degree	-------	15 credits from non-traditional sources (military ACE, etc)	Determined by college	30 of the last 36 credits must be earned	Associate: 32. Bachelor:50	No maximum	From 2 year: 65 credits. From 4 year: 90 credits
Minimum grade	C	--------	C	D, C- may be required by programs	D	D	C-
Regional accredited PSE institution	NWCCU	NWCCU	HLC	HLC	HLC	HLC	SACSCOC
Accredited examinations	AP, CLEP	CLEP, CBAPE, DSST, IB	AP, CLEP, IB	AP, IB, CLEP DANTES	AP, CLEP, DSST, IB	--------	AP, IB, CLEP A-levels
Accredited Job Training Courses	--------	--------	--------	--------	--------	--------	--------
Accredited courses from digital platforms	--------	Yes	No	--------	--------	--------	No
Non-Accredited courses from digital platforms	--------	Yes	No	--------	--------	--------	No
Accredited micro credentials from digital platforms	--------	Yes	No	--------	--------	--------	No
Non-Accredited micro credentials from digital platforms	--------	Yes	--------	--------	--------	--------	No
Excluded subjects	--------	--------	--------	--------	--------	--------	--------
Professional Certifications	--------	--------	--------	--------	--------	--------	--------

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U NCarolinaC	U CarolinaE	U AppalachianS	U NDakota	U NDakotaS	U Minot	U DickinsonS
Maximum number transferrable for Undergraduate degree	From 2 year: 64 credits. From 4-year: 98 credits	No maximum	Last 30 credits must be earned at U-NDakota	Last 30 credits must be earned at UND	--------	Min of 30 hours (of the 60 hours that must be completed at a 4 year institution) must be earned	Minimum 16 credits at DSU for associate. 32 for bachelor
Minimum grade	C	C	D	D	All letter grades will be accepted, however, colleges and departments have their specific standards.	-------	D
Regional accredited PSE institution	SACSCOC	SACSCOC	SACSCOC	HLC	HLC	HLC	HLC
Accredited examinations	AP, IB, Subject Tests, A Level, CLEP, French Bacc, SQA, PRE-U	AP, IB, CLEP, DANTES	AP IB CLEP AS & A levels	CLEP, DSST	AP, IB, CLEP, DSST	AP, IB, CLEP, DSST	CLEP, AP
Accredited Job Training Courses	--------	--------	--------	--------	--------	--------	--------
Accredited courses from digital platforms	Exam required	No	Exam required	No	-------	Exam Required	No
Non-Accredited courses from digital platforms	Exam required	No	Exam required	No	-------	Exam Required	No
Accredited micro credentials from digital platforms	Exam required	No	Exam required	No	--------	--------	No
Non-Accredited micro credentials from digital platforms	Exam required	No	Exam required	No	--------	--------	-------
Excluded subjects	--------	--------	--------	--------	Remedial Courses	--------	-------
Professional Certifications	--------	--------	--------		--------	--------	-------

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U OhioState	U Cincinnati	U KentState	U Akron	U Oklahoma	U OklahomaS	U OklahomaC
Maximum number transferrable for Undergraduate degree	Min 45 quarter hours at Ohio State to receive bachelors	Min 30 semester hours must be earned at Cincinnati	Min of 15 credits for Associate. Min of 30 for bachelors	Must earn the last 32 credits in bachelor or last 16 credits in the associate degree	Minimum of 60 semester hours must be earned at u	65 credits from 2-year institutions. 95 from 4 year institution.	Min of 60 credits earned in Oklahoma.
Minimum grade	C- ; D- may be accepted in some circumstances	D	D, C- may be required by majors/academic programs.	D-	D	D	Some programs: C
Regional accredited PSE institution	HLC	HLC	HLC	HLC	HLC	HLC	HLC
Accredited examinations	AS and A Levels, AP, IB, CLEP, DSST	AP, IB, CLEP, DSST, A- and AS-levels	AP, IB, A-levels, CLEP	CLEP, AP, IB	AP, CLEP, Excelsior Exam, IB	AP, IB, CLEP, DANTES for military	-------
Accredited Job Training Courses	--------	--------	--------	--------	--------	--------	--------
Accredited courses from digital platforms	Exam required	--------	ACE recommendation for military credit	ACE accredited	Yes, if ACE accredited	Yes, if ACE accredited for military	-------
Non-Accredited courses from digital platforms	Exam required	--------	Exam required	Exam required	No	Exam required	-------
Accredited micro credentials from digital platforms	Exam required	--------	Exam required	If ACE accredited	Yes, if ACE accredited	Exam required	-------
Non-Accredited micro credentials from digital platforms	Exam required	--------	Exam required	Exam required	No	Exam required	-------
Excluded subjects	--------	--------	--------	--------	--------	--------	--------
Professional Certifications	--------	--------	----------	--------	--------	--------	--------

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U NorthES	U OregonS	U PortlandS	U Oregon	U SouthernO	U SCarolinaC	CharlestonC
Maximum number transferrable for Undergraduate degree	64 credits. Min of 30 credits earned at NSUOK	135 quarter credits	-------	124 credits from 2 year. Minimum of 62 credits earned	No limit, Min of 45 credit of last 60 credits should be from U-SouthernO	76 credits from 2 year institutions	90 credits
Minimum grade	-------	C-	D	D	C-	C	C
Regional accredited PSE institution	HLC	NWCCU	NWCCU	NWCCU	NWCCU	SACSCOC	SACSCOC
Accredited examinations	AP, CLEP, DANTES, IB	AP, IB, CLEP, Military ACE credits	AP, IB, CLEP	------	AP, IB, CLEP	A level, AP, IB, CLEP	AP, IB, CLEP, AS and A Level
Accredited Job Training Courses	------	------	------	------	------	-------	-------
Accredited courses from digital platforms	Exam required	Yes, ACE accredited courses	Yes, ACE accredited courses	No	Yes, ACE recommendation for military credit	-------	No
Non-Accredited courses from digital platforms	Exam required	------	-------	No	No	-------	No
Accredited micro credentials from digital platforms	Exam required	Exam Required	Exam required	No	--------	-------	No
Non-Accredited micro credentials from digital platforms	Exam required	--------	--------	--------	--------	-------	No
Excluded subjects	----------	--------	--------	--------	--------	-------	-------
Professional Certifications	----------	--------	--------	--------	--------	-------	-------

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U Clemson	U CarolinaC	U SDakotaS	U SDakota	U NorthernS	U BlackHillsS	U TennesseeS
Maximum number transferrable for Undergraduate degree	No limit but must complete 37 of the last 43 credits at Clemson	2 Year: 76. 4 Year: 90	Must earn 16 credits in residence at University. 32 to receive your bachelor's degree.	2 year colleges transfer 64 credits. 4 years earn 32 credits at their university	--------	64 Credits	Must earn at least 60 semester hours of credit at a 4-year college or university
Minimum grade	C	C	D	3.0 GPA (usually a B)	2.0 GPA (usually C-)	C	D-, many programs require C
Regional accredited PSE institution	SACSCOC	SACSCOC	HLC	HLC	HLC	HLC	SACSCOC
Accredited examinations	AP, IB, CLEP	IB, AP, CLEP		-------	-------	-------	AP, CLEP, IB, AS and A Level, State-wide Dual Credit
Accredited Job Training Courses	-------	--------	-------	-------	-------	-------	-------
Accredited courses from digital platforms	No	No	-------	-------	-------	-------	-------
Non-Accredited courses from digital platforms	No	No	-------	-------	-------	-------	-------
Accredited micro credentials from digital platforms	No	No	-------	-------	-------	-------	-------
Non-Accredited micro credentials from digital platforms	No	No	-------	-------	-------	-------	-------
Excluded subjects	--------	--------	-------	-------	-------	-------	-------
Professional Certifications	--------	--------	-------	-------	-------	-------	-------

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U TennesseeM	U Memphis	U TennesseeE	U Utah	U UtahV	U WeberState	U UtahS
Maximum number transferrable for Undergraduate degree	No limit, A min of 60 semester hours of senior college credit will be required	No limit, but must earn at least 30 at the university for a bachelor	No limit, but must complete 30 semester hours in residence	Must take 30 credits in residence at Utah to earn a bachelor's degree	No limit, at least 20 must be earned at U-UtahV for associates and 30 for bachelor	Must earn 45 quarter/30 semester credits in residence at Weber State to receive a bachelor's degree	Must complete 20 credits in residence to earn your associate, degree, and 30 credits to earn your Bachelor
Minimum grade	2.0 GPA (usually a C-)	C	D	D-	C-	D-	D
Regional accredited PSE institution	SACSCOC	SACSCOC	SACSCOC	NWCCU	NWCCU	NWCCU	NWCCU
Accredited examinations	AP, Cambridge, CLEP, DSST, IB,	AP, CLEP, DSST, IB.	DANTES, AP, IB, CLEP, CE, ECE, Tennessee Statewide Dual Credit	CLEP, AP, IB, Language Proficiency	AP, CLEP, DSST, IB	CLEP, AP, IB	AP, IB, CLEP, DANTES
Accredited Job Training Courses	-------	-------	-------	-------	-------	-------	-------
Accredited courses from digital platforms	-------	Exam required	Exam required	Exam required	No	Exam required	No
Non-Accredited courses from digital platforms	-------	Exam required	Exam required	Exam required	No	Exam required	No
Accredited micro credentials from digital platforms	-------	Exam required	--------	Exam required	No	Exam required	No
Non-Accredited micro credentials from digital platforms	-------	Exam required	--------	--------	No	Exam required	No
Excluded subjects	-------	-------	--------	--------	--------	--------	--------
Professional Certifications	-------	-------	--------	--------	--------	--------	--------

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U Vermont	U VermontN	U Castleton	VermontTC	U GeorgeM	U VirginiaPIS	U VirginiaC
Maximum number transferrable for Undergraduate degree	No limit, but 30 of the last 45 credits earned for the UVM degree must be taken at the University.	-------	64 Credits	--------	90 Credits	50 credit from 2 year colleges. 75% of degree requirements 4-year college.	No limit, but a minimum of 30 credits earned at the university
Minimum grade	C	C-	C-	C-, C for some Science courses	C	C	2.5 GPA (Usually a C)
Regional accredited PSE institution	NECHE	NECHE	NECHE	NECHE	SACSCOC	SACSCOC	SACSCOC
Accredited examinations	AP, IB, CLEP, DANTES	AP, IB, CLEP	IB, AP, CLEP	No	AP, IB, CLEP, SAT Subject Tests, A-Level Exams, Departmental Credit exams	AP, CLEP, DSST, IB	-------
Accredited Job Training Courses	-------	-------	-------	-------	--------	--------	--------
Accredited courses from digital platforms	No	ACE for military credit. A course for others.	-------	-------	No	--------	--------
Non-Accredited courses from digital platforms	No	Course required	-------	-------	No	--------	--------
Accredited micro credentials from digital platforms	No	Course required	-------	-------	No	No	--------
Non-Accredited micro credentials from digital platforms	No	Course required	-------	-------	No	No	--------
Excluded subjects	-------	-------	-------	-------	---------	---------	--------
Professional Certifications	-------	-------	-------	-------	---------	---------	--------

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U Virginia	NMarianasC	U PennCalu	U Pittsburgh	U PittsburghG	U NewYorkSB	U NewYorkSC
Maximum number transferrable for Undergraduate degree	60 Credits	Max of 75% of transfer credits toward degree or certificate program. 25% must be earned through NMC credits.	No Max credit, All first baccalaureate degree students will take at least 30 of the last 60 credits from U-PennCalu	A max of 60 can transfer from a 2-year, 90 from a 4-year.	A max of 90 credits may be transferred from 4-year institution and 60 credits from a two-year institution.	Student can transfer a maximum of 64 credits from any accredited two-year college	24 college credits, Prior learning credits, 15 credit for Associate degree and 15 for bachelor
Minimum grade	C	C	C	C	C	Grade of "C-" or "D"	C
Regional accredited PSE institution	SACSCOC	WSCUC	MSCHE	MSCHE	MSCHE	MSCHE	MSCHE
Accredited examinations	AP, IB	AP, IB, CLEP, ECE	CLEP/ DANTES/ AP, military credits,	CLEP, ROTC, AP, SAT, Challenge Examination,	AP, CLEP, Challenge Examination, IB	AP, CLEP, IB, DANTES	CLEP, ECE, AP, DSST/DANTES, IB, Military Education
Accredited Job Training Courses	-------	ACE recommendation courses	Prior Learning Assessment (PLA)	--------	-------	--------	---------
Accredited courses from digital platforms	No	------	--------	Study.com Saylor.org	OnlineDegree.com	--------	---------
Non-Accredited courses from digital platforms	No	------	--------	--------	--------	--------	---------
Accredited micro credentials from digital platforms	No	------	--------	--------	--------	Yes, Micro credentials	Yes, Micro credentials
Non-Accredited micro credentials from digital platforms	No	------	--------	--------	--------	--------	------
Excluded subjects	--------	------	--------	--------	---------	Remedial or developmental courses, some skills courses	Remedial or developmental courses, some skills courses
Professional Certifications	--------	------	--------	--------	---------	--------	-------

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U NewYorkSP	U WisconsinW	U WisconsinM	U VirginiaWP	U VirginiaW	U Washington	U WashingtonS
Maximum number transferrable for Undergraduate degree	Max of 90 credits including a max of 75 lower-level (freshman-sophomore) credits toward bachelor degree	Up to 72 credits from a two-year institution, and the additional 48 must be completed at UW-Whitewater	Max number of transferable credits from a two-year college is 72. There is no credit limit for a four-year university	48 credits for 2-year schools. 48 credit for 4 year institutions	72 credits	90 credits for 4-year institutions and 73 credits for 2 year institutions	A max of 45 quarter credits toward general education requirement(s)
Minimum grade	D, C in specific courses	Grade (D or better)	"Pass" grade	-------	D or higher	C	C
Regional accredited PSE institution	MSCHE	HLC	HLC	HLC	HLC	NWCCU	NWCCU
Accredited examinations	AP, CLEP, IB	AP, CLEP, IB	AP, CLEP, IB, A-Levels	AP,SAT/ACT, CLEP	AP, CLEP, IB, CE, Military Credit	AP, CLEP, IB	AP, IB, A-Levels, AS-Level
Accredited Job Training Courses	---------	--------	--------	--------	------	--------	-------
Accredited courses from digital platforms	---------	Study.com	Study.com	--------	Study.com	Study.com Saylor.org	Study.com
Non-Accredited courses from digital platforms	---------	--------	--------	--------	-------	-------	-------
Accredited micro credentials from digital platforms	Yes, micro credentials	Micro-credentials	--------	--------	-------	-------	Micro credentials
Non-Accredited micro credentials from digital platforms	-------	-------	---------	--------	--------	-------	-------
Excluded subjects	Remedial, college-prep, college success and college experience credits	-------	Remedial, technical, vocational, graduate-level, Continuing education courses	-------	--------	--------	-------
Professional Certifications	--------	-------	--------	--------	--------	--------	Offers through Coursera

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U VirginIsland	U NewJerseyC	U PlymouthS	U MontanaS	U MissouriC	U MissouriMS	U MississippiS
Maximum number transferrable for Undergraduate degree	30 credits of the last 36 credits toward a degree	2 year: 20 credits. 4-year institutions: 90 credits	2-year school are 65, and 90 from a 4-year	30 credits	60 credits	No limit on the number of credits that maybe transferred from other institutions	Max accepted from a 2-year is 62 credits, and 93 credits from a 4-year.
Minimum grade	C	C	C	C-	C	"Pass" grade	C
Regional accredited PSE institution	MSCHE	MSCHE	NECHE	NWCCU	HLC	HLC	SACSCOC
Accredited examinations	AP, CAPE, IB, CLEP	AP, IB, CLEP, DSST, A-levels	AP, DSST, CLEP, Departmental Examinations	AP, IB	AP, IB, CLEP, DANTES/DSST	AP, CLEP	CLEP, ACT, SAT
Accredited Job Training Courses	-------	-------	------	-------	ACE recommendation courses	------	------
Accredited courses from digital platforms	-------	Study.com	Study.com	Study.com	Study.com	Study.com	Study.com
Non-Accredited courses from digital platforms	-------	-------	-------	-------	------	------	-------
Accredited micro credentials from digital platforms	-------	-------	-------	-------	------	------	-------
Non-Accredited micro credentials from digital platforms	-------	-------	-------	-------	------	------	-------
Excluded subjects	-------	-------	-------	-------	Remedial or developmental work	Remedial courses	-------
Professional Certifications	-------	-------	-------	-------	--------	------	-------

Appendix I: Extended List of Transfer policies for US Universities

Credit Rules	U AlcornS	U MinnesotaM	U WinonaState
Maximum number transferrable for Undergraduate degree	30 credit	98 credits for 4 year institutions and 64 from 2-year institutions	------
Minimum grade	C	D	D
Regional accredited PSE institution	SACSCOC	HLC	HLC
Accredited examinations	AP, IB, CLEP	AP, IB, CLEP, DANTES/ DSST, Military credit	AP, CLEP, A-Level, IB
Accredited Job Training Courses	-------	-------	------
Accredited courses from digital platforms	-------	Study.com	Study.com
Non-Accredited courses from digital platforms	-------	-------	------
Accredited micro credentials from digital platforms	-------	-------	------
Non-Accredited micro credentials from digital platforms	-------	-------	------
Excluded subjects	Remedial, Technical, Vocational courses	-------	------
Professional Certifications	**-------**	**-------**	**------**

Appendix I: Acronyms for Extended List of Transfer policies for US Universities

ROTC - Reserve Officer Training Corps courses
NLN - National League for Nursing Placement Examination
NOCTI - National Occupation Trades and Industry Examination
CBAPE - College Board Advanced Placement Examinations
AICE - Advanced International Cambridge Examinations
PE - Proficiency Examinations
AS - Advanced Subsidiary Exams (AS Level)
PEP - Proficiency Examination Program
ACP - Alternative Certification Pathway.
CE - Comprehensive Examinations.
GDE - General Education Development.
DLI - Defense Language Institute's (DLI) Defense Language Proficiency Tests.
PaCE - Professional and Continuing Education
UExcel - UExcel Examination.
NCLEX - National Council of Licensure Examination Credit
NEWL - National Examinations in World Languages.
CACE - Consortium for the Assessment of College Equivalency
MC - Military Credit
ASE - Advanced Standing Exams
CI - Cambridge International
DC - Dual Credit
DEC - Departmental Exam Credit
AP - Advanced Placement
IB - International Baccalaureate
CLEP - College Level Examination Program
GAC - Global Assessment Certificate
PLA - Prior Learning Assessment
DE - Dual Enrollment
AICE - Advanced International Certificate of Education Program
HLC-NCA - Higher Learning Commission of the North Central Association of Colleges and Schools
GCE - General Certificate of Education
CHEA - Council of Higher Education Accreditation
CPA - Certified Public Accountant
ECE – Excelsior College Examinations
PAN - Performance Assessment Network
TECEP - Thomas Edison Credit-by-Examination Program Exams
CPS - Certified Professional Secretary
CAP - Certified Administrative Professional
PTC - Professional Testing Corporation
NBCC - National Board for Certified Counselors
CEEB - College Entrance Examination Board

Appendix I: Acronyms for Major Universities in the United States and Canada.

Name of the Universities	Acronym Used
University of Alabama Tuscaloosa	U-AlabamaT
University of Alabama at Birmingham	U-AlabamaBir
Troy University	U-Troy
Auburn University	U-Auburn
University of Alaska Fairbanks	U-AlaskaFair
University of Alaska Anchorage	U-AlaskaAnc
University of Alaska Southeast	U-AlaskaSouthE
Arizona State University	U-ArizonaState
Northern Arizona University	U-NArizona
University of Arizona	U-Arizona
University of Arkansas Fayetteville	U-ArkansasFay
Arkansas State University	U-ArkansasS
University of Arkansas at Little Rock	U-ArkansasLR
University of Central Arkansas	U-ArkansasC
California State University	U-CaliforniaS
University of California, San Diego	UC San Diego
California State University, Los Angeles	U-CalStateLA
California State University, Northridge	U-CaliforniaSN
University of Colorado Boulder	U-ColoradoB
Metropolitan State University of Denver	U-MSDenver
Colorado State University	U-ColoradoS
University of Northern Colorado	U-ColoradoN
University of Connecticut	U-Connecticut
Central Connecticut State University	U-ConnecticutCS
Southern Connecticut State University	U-ConnecticutSS
Charter Oak State College	CharterOakSC
University of Delaware	U-Delaware
Delaware State University	U-DelawareS
University of the District of Columbia	U-ColumbiaD
University of Florida	U-Florida
University of South Florida	U-FloridaS
Florida State University	U-FloridaState
University of Central Florida	U-FloridaC
Georgia Institute of Technology	Georgia Tech
Georgia Institute of Technology	Georgia-SU
University of Georgia	U-Georgia
University of West Georgia	U-WestGeorgia

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Name of the Universities	Acronym Used
University of Guam	U-Guam
University of Hawaii at Mānoa	U-Hawaii
University of Hawai'i Maui College	U-HawaiiMC
University of Hawai'i–West O'ahu	U-HawaiiW
University of Hawai'i at Hilo	U-HawaiiH
Boise State University	U-BoiseState
University of Idaho	U-Idaho
Idaho State University	U-IdahoS
Lewis-Clark State College	LewisClarkSC
University of Illinois at Urbana–Champaign	U-Illinois
Western Illinois University	U-IllinoisW
Southern Illinois University Carbondale	U-IllinoisSC
Northeastern Illinois University	U-IllinoisN
Purdue University	U-Purdue
University of Southern Indiana	U-SIndiana
Indiana State University	U-IndianaS
Vincennes University	U-Vincennes
University of Iowa (Iowa)	U-Iowa
Iowa State University (ISU)	U-IowaState
University of Northern Iowa	U-NorthernIowa
Emporia State University	U-EmporiaS
Kansas State University	U-KansasS
University of Kansas	U-Kansas
Wichita State University	U-WichitaS
University of Kentucky	U-Kentucky
University of Louisville	U-Louisville
Western Kentucky University	U-KentuckyW
Northern Kentucky University	U-KentuckyN
University of Louisiana at Lafayette	U-Louisiana
Louisiana State University at Eunice	U-LousianaSE
University of New Orleans	U-NewOrleans
Southern University at New Orleans	U-SouthernNO
University of Maine Orono	U-MaineO
University of Southern Maine	U-MaineS
University of Maine at Augusta	**U-MaineA**
University of Maine Farmington	U-MaineF
University of Maryland, College Park	U-MarylandCP

Appendix I: Acronyms for Major Universities in the United States and Canada.

Name of the Universities	Acronym Used
University of Baltimore	U-Baltimore
Coppin State University	U-CoppinState
University of Maryland, Global Campus	U-MarylandGC
University of Massachusetts Lowell	U-Massachusetts
Bridgewater State University	U-BridgewaterS
University of Massachusetts Amherst	U-MassachusettsA
Salem State University	U-SalemS
University of Michigan	U-Michigan
Northern Michigan University	U-MichiganN
Central Michigan University	U-MichiganC
Western Michigan University	U-MichiganW
University of Minnesota	U-Minnesota
Minnesota State University, Mankato	U-MinnesotaM
Winona State University	U-WinonaState
University of Mississippi	U-Mississippi
Mississippi State University	U-MississippiS
Alcorn State University	U-AlcornS
University of Missouri	U-Missouri
University of Central Missouri	U-MissouriC
Missouri State University	U-MissouriMS
University of Montana	U-Montana
Montana State University	U-MontanaS
University of Nebraska-Lincoln	U-NebraskaL
University of Nebraska Omaha	U-NebraskaOm
University of Nebraska at Kearney	U-Nebraska
Omaha State College	OmahaSC
University of Nevada - Reno	U-NevadaR
University of Nevada - Las Vegas	U-NevadaLV
Nevada State College	NevadaSC
Great Basin College	GreatBasinC
University of New Hampshire	U-NewHamp
Plymouth State University	U-PlymouthS
Thomas Edison State University	TESU
New Jersey City University	U-NewJerseyC
University of New Mexico	U-NewMexico
New Mexico State University	U-NewMexicoS
Eastern New Mexico University	U-NewMexicoE

Appendix I: Acronyms for Major Universities in the United States and Canada.

Name of the Universities	Acronym Used
University of North Dakota	U-NDakota
North Dakota State University	U-NDakotaS
Minot State University	U-Minot
Dickinson State University	U-DickinsonS
Northern Marianas College	NMarianasC
Ohio State University	U-OhioState
University of Cincinnati	U-Cincinnati
Kent State University	U-KentState
University Akron	U-Akron
University of Oklahoma	U-Oklahoma
Oklahoma State University	U-OklahomaS
University of Central Oklahoma	U-OklahomaC
Northeastern State University	U-NorthES
Oregon State University	U-OregonS
Portland State University	U-PortlandS
University of Oregon	U-Oregon
Southern Oregon University	U-SouthernO
University of Pennsylvania	U-PennState
California University of Pennsylvania	U-PennCalu
University of Pittsburgh	U-Pittsburgh
University of Pittsburgh at Greensburg	U-PittsburghG
University of Puerto Rico at Rio Piedras	U-PuertoRicoP
University of Puerto Rico at Utuado	U-PuertoRicoU
University of Puerto Rico at Carolina	U-PuertoRicoC
Rhode Island College (RIC)	RI-College
University of Rhode Island	U-RhodeIsland
University of South Carolina Columbia	U-SCarolinaC
College of Charleston	CharlestonC
Clemson University	U-Clemson
Coastal Carolina University	U-CarolinaC
South Dakota State University	U-SDakotaS
University of South Dakota	U-SDakota
Northern State University	U-NorthernS
Black Hills State University	U-BlackHillsS
University of Tennessee Knoxville	U-TennesseeS
Middle Tennessee State University	U-TennesseeM
University of Memphis	U-Memphis

Appendix I: Acronyms for Major Universities in the United States and Canada.

Name of the Universities	Acronym Used
East Tennessee State University	U-TennesseeE
University of Houston-Houston	U-Houston
The University of Texas at Dallas	U-Texas
Texas A&M University	U-TexasA&M
Texas Tech University	U-TexasTech
University of Utah	U-Utah
Utah Valley University	U-UtahV
Weber State University	U-WeberState
Utah State University	U-UtahS
University of Vermont	U-Vermont
Northern Vermont University	U-VermontN
Castleton University	U-Castleton
Vermont Technical College	VermontTC
George Mason University	U-GeorgeM
Virginia Polytechnic Institute and State University	U-VirginiaPIS
Virginia Commonwealth University	U-VirginiaC
University of Virginia	U-Virginia
University of the Virgin Islands	U-VirginIsland
University of Washington	U-Washington
Washington State University	U-WashingtonS
West Virginia University at Parkersburg	U-VirginiaWP
West Virginia University	U-VirginiaW
University of Wisconsin–Whitewater	U-WisconsinW
University of Wisconsin–Madison	U-WisconsinM
University of Wyoming	U-Wyoming
***https://en.wikipedia.org/wiki/List_of_state_and_territorial_universities_in_the_United_States#Virgin_Islands	

Select Universities in Canada	Acronym Used
University of Alberta	U-Alberta
University of British Columbia	U-BritishColumbia
University of Manitoba	U-Manitoba
Dalhousie University	U-Dalhousie
University of Toronto	U-Toronto
York University	U-York
McGill University	U-McGill

TED ROGERS SCHOOL OF MANAGEMENT

Institute for Innovation & Technology Management

@RyersonIITM

RYERSON UNIVERSITY

350 VICTORIA STREET

TORONTO, ONTARIO,

M5B 2K3