

ESTIMATES OF SPACE NEEDS DISPLACED BY ONLINE COURSES
 prepared by Michael Haggans - July 11, 2016

MINIMUM ESTIMATE - CLASSROOMS, ACADEMIC OFFICES, STUDENT LIFE AND STUDY SPACE					
CLASSROOM CALCULATION			Public	Private	Sources / Notes
Undergraduate 4-year				Non-profit	
S1	Students taking at least one, but not all online	1,130,570	193,668	1,324,238	NCES Digest of Educational Statistics 2014 - 311.15
Se	Students taking exclusively online courses	398,695	290,162	688,857	NCES Digest of Educational Statistics 2014 - 311.15
	Total students taking one or more online classes			2,013,095	NCES Digest of Educational Statistics 2014 - 311.15
	Hours per each online student, fall semester			3	Haggans - Assumption (actual value is expected to be greater)
	Hours per undergraduate FTE			15	IPEDS Glossary
F	Headcount to FTE Factor - FTE / Online student			0.2	3/15
Sto	FTE Total Online students			402,619	(S1+Se) * F
Mc	Median classroom ASF per FTE			13.5	Kings of Infinite Space, page 8
ASFc	ASF classrooms not occupied by online students			5,440,000	Sto * Mc
G	Grossing factor - ASF to BGSF			1.5	Haggans - Assumption based on professional experience
BGSFc	Classroom BGSF			8,200,000	ASFc * G
OFFICE SPACE CALCULATION			Public	Private	Sources / Notes
Undergraduate 4-year				Non-profit	
Se	Students taking exclusively online courses	398,695	290,162	688,857	NCES Digest of Educational Statistics 2014 - 311.15
	Hours per each online student, fall semester			3	Haggans - Assumption (actual value is expected to be greater)
	hours per undergraduate FTE			15	IPEDS Glossary
F	Headcount to FTE Factor - FTE / Online student			0.2	3/15
Soc	FTE Students Off-campus			137,771	Se * F
					Haggans - Assumption that 50% of office space is administrative
Mo	Median office ASF per FTE @ .5 for non-academic office space			17.5	Kings of Infinite Space, page 9 (median value is 35 ASF/FTE)
ASFo	Estimate of ASF Office not required			2,410,000	Soc * Mo
G	Grossing factor - ASF to BGSF			1.5	Haggans - Assumption based on professional experience
BGSFo	Office BGSF			3,600,000	ASFo * G
STUDENT SERVICE AND STUDY CALCULATION			Public	Private	Sources / Notes
Undergraduate 4-year				Non-profit	
Se	Students taking exclusively online courses	398,695	290,162	688,857	NCES Digest of Educational Statistics 2014 - 311.15
	Hours per each online student, fall semester			3	Haggans - Assumption (actual value is expected to be greater)
	Hours per undergraduate FTE			15	IPEDS Glossary
F	Headcount to FTE Factor - FTE / Online student			0.2	3/15
Soc	FTE Online students Off-campus			137,771	Se * F
Mss	Median student services + study ASF per FTE			30	Kings of Infinite Space, pages 10 and 11
ASFss	Estimate of ASF student service + study not required			4,130,000	Soc * Mss
G	Grossing factor - ASF to BGSF			1.5	Haggans - Assumption based on professional experience
BGSFss	Office BGSF			6,200,000	ASFo * G
TOTAL BGSF (Building Gross Square Feet)				18,000,000	BGSFc + BGSFo + BGSFss

MAXIMUM ESTIMATE - TOTAL NON-RESIDENTIAL SPACE					
NON-RESIDENTIAL SPACE CALCULATION			Public	Private	Sources / Notes
Undergraduate 4-year				Non-profit	
Se	Students taking exclusively online courses	398,695	290,162	688,857	NCES Digest of Educational Statistics 2014 - 311.15
	Hours per each online student, fall semester			3	Haggans - Assumption (actual value is expected to be greater)
	Hours per undergraduate FTE			15	IPEDS Glossary
F	Headcount to FTE Factor - FTE / Online student			0.2	3/15
Soc	FTE Online students Off-campus			137,771	Se * F
Mnr	Median non-residential ASF per FTE			125	Kings of Infinite Space, page 7
ASFnr	Estimate of ASF non-residential not required			17,220,000	Soc * Mnr
G	Grossing factor - ASF to BGSF			1.5	Haggans - Assumption based on professional experience
BGSFnr	NON-RESIDENTIAL BGSF (BUILDING GROSS SQUARE FEET)			25,800,000	ASFnr * G

FTE = Full Time Equivalent students ASF = Assignable Square Feet (usable area) BGSF = Building Gross Square Feet (ASF + hallways, mechanical rooms, etc.)

DISCLAIMER - These estimates, methodology and interpretations are mine alone and are not those of the NCES, IPEDS, Department of Education, the Society of College and University Planning or any of the authors of the publications referenced. **OBSERVATIONS** -This is a first approximation of the facilities implications of the digital transformation of higher education. While none of the data sources were intended to be used in this manner. The NCES data is for "distance learning" (in this context synonymous with online) and is the most accurate estimate of the number of students yet assembled. The SCUP published data (Kings of Infinite Space) concerns campus ASF to FTE student facilities values that essentially predate any significant online impacts. Therefore, I consider them to be an appropriate benchmark. As for the derivation of FTE and the magnitude of on-campus facilities demand, it is self-evident that students earning online credit are not occupying classrooms in any conventional sense. However, they may well be living in on-campus or near-campus housing. Thus the estimates of student life and study space impacts are limited to students taking exclusively online courses. As for the office calculation, most online courses are taught by adjuncts without conventional office space. At the same time, it is appropriate to recognize the administration office support still required for online students and their programs. - Michael Haggans - July 7, 2016