CTE LABOR MARKET TOOL

This resource provides data snapshots and insights about the overall media and design labor market, and a closer focus on the Video Game Designers*******, Web Developers, and Graphic Designers occupations as those are popular areas for CTE media and design programs. It also includes some guiding questions to help apply the data to your school's CTE program.

Careers in media and design include many different kinds of jobs, and they tend to be creative. Many occupations in this area focus on designing and testing online-related products like websites and video games, and understanding how users interface with them, while other occupations involve designing special effects for film productions or graphics for promotional materials. People with these occupations work in many different settings, including offices and studios, and some may have the option to work remotely. The three largest media and design occupations in New York City are Software Developers, Applications; Graphic Designers; and Web Developers. Chart 1 below shows the many different kinds of NYC organizations hiring professionals in media and design.

Why use this resource?

- ➤ **Use as a critical tool with your school's self study group to guide program planning and improvement aligned to labor market data**

- ➤ **Use as a critical tool to prepare students for postsecondary planning towards high-demand careers**

- ➤ **Feel prepared and confident when responding to NYSED questions about incorporating labor market data into your work**

Chart 1: Types of organizations doing the most entry-level hiring in media and design*, NYC, number of online job ads**, 10/1/2021 - 3/31/2022

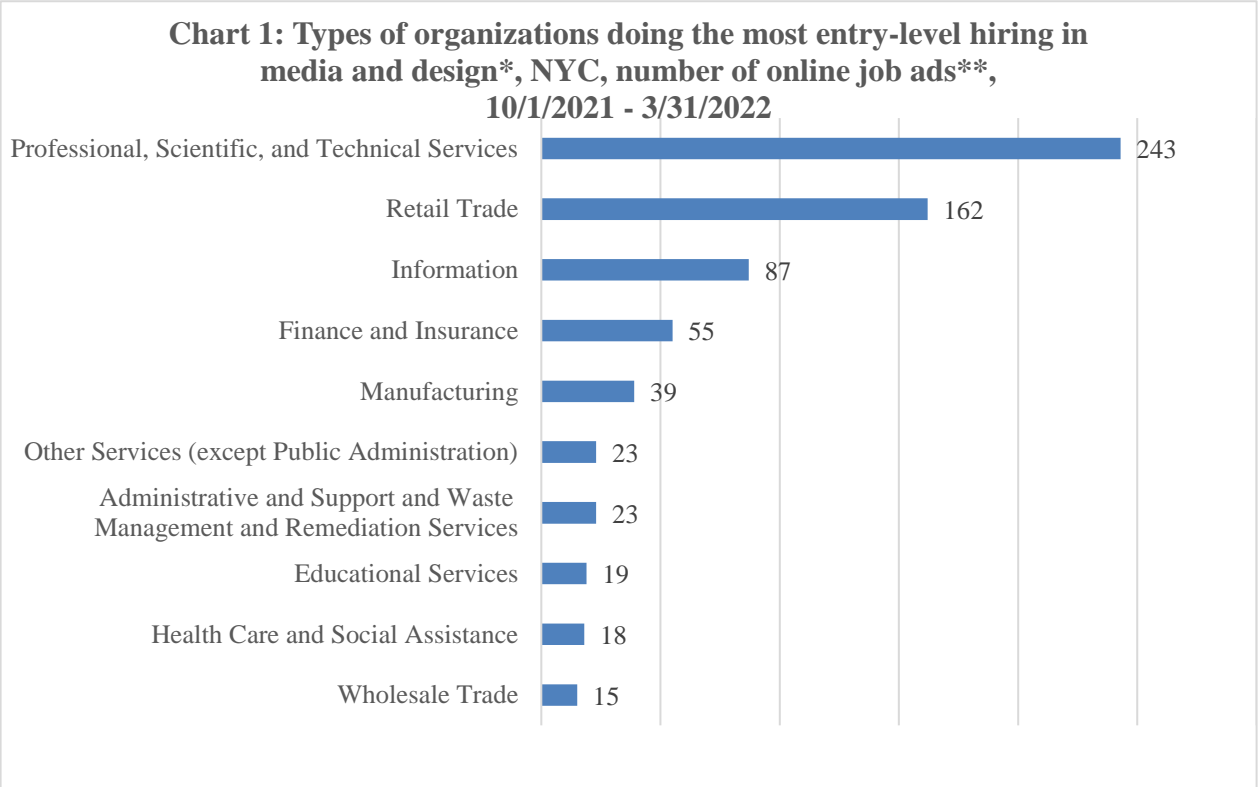| Organization	Number
Professional, Scientific, and Technical Services	243
Retail Trade	162
Information	87
Finance and Insurance	55
Manufacturing	39
Other Services (except Public Administration)	23
Administrative and Support and Waste Management and Remediation Services	23
Educational Services	19
Health Care and Social Assistance	18
Wholesale Trade	15

Chart 2 provides an overview of New York City employment in each of the three focus occupations. As you can see, the number of jobs in each of the occupations is expected to grow by 2028, with the *percentage increase* the largest for the web developers occupation (13.1%), and the predicted *size* of the occupation the largest for graphic designers (17,200 jobs). It's important to keep in mind that even though these predictions help us understand the labor market's trajectory, things like new technologies or innovations, shifts in the economy, or major unexpected shocks like the COVID-19 pandemic can impact their accuracy.

Chart 2: Current & projected employment for 3 focus occupations, NYC, 2018 - 2028

	# Employed in NYC****	Projected NYC Employment***		Change Over Time (2018-2028)	
	2020	2018	2028	Net	Percent
Video Game Designers	2,310	2,140	2,390	250	11.7%
Web Developers	8,970	9,030	10,210	1,180	13.1%
Graphic Designers	12,630	16,500	17,200	700	4.2%

IN THIS RESOURCE...

Looking Deeper: Who's Being Hired in This Field?

- Approximately half of job ads for each of the three focus occupations did not specify years of experience sought. For those that did, a mid-range of experience – between 2-6 years – was most common for all three occupations.

- There is some overlap in the employability skills that organizations look for in job candidates, with communication skills in-demand for all three focus occupations, and marketing and detail-oriented in-demand for two of the three focus occupations. Notably, no certifications met the criteria of in-demand – mentioned in at least 10% of job posts – for any of the three occupations.

- Entry-level wages for web developers exceed the living wage for a single adult in NYC ($48,320********), while entry-level wages for the other two focus occupations are less than the living wage.

- A 4-year degree was the most commonly-sought education credential for all three focus occupations.

Chart 3: Percentage distribution of years of experience sought for job candidates in the 3 focus occupations in NYC, based on online job ads**, 10/1/2021 - 3/31/2022
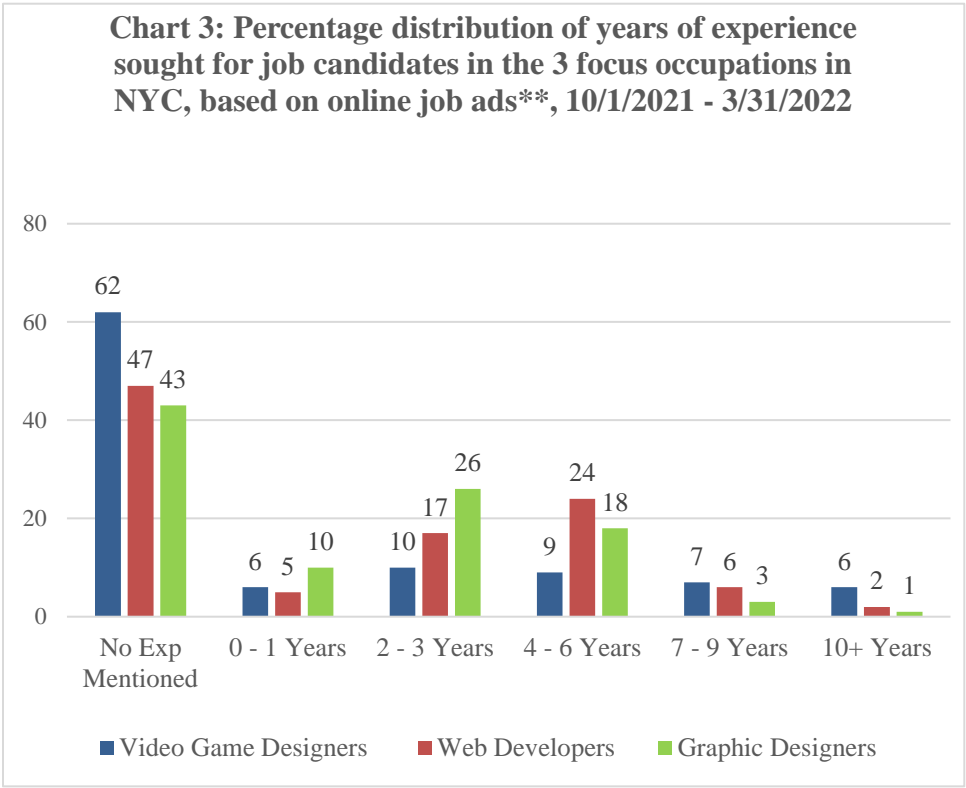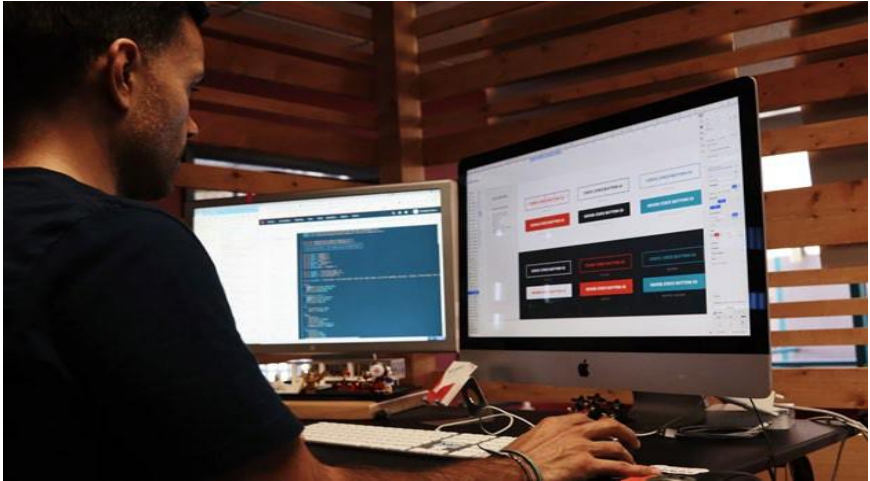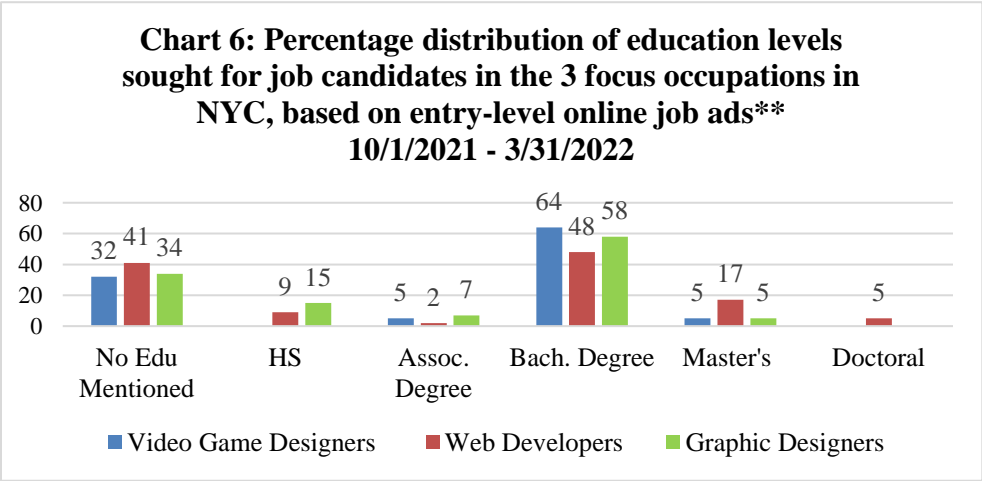

The chart below reflects entry-level wages****, as well as the most in-demand (i.e., among the five most frequently requested and in at least 10% of online job ads*********) employability skills, technical skills, and certifications** for entry-level jobs in the three focus occupations from 10/1/2021 – 3/31/2022. Values in parentheses reflect the percentage of online job ads in which each skill is mentioned.

Chart 4: Entry-level wages & in-demand skills for 3 focus occupations				
Occupation	**Entry-level Wage**	**In-demand Employability Skills**	**In-demand Technical Skills**	**In-demand Certifications**
Video Game Designers	$44,450	Problem Solving (32%), Communications (27%), Leadership (27%), Marketing (27%), and Written Communication (23%)	Computer Science (27%), Finance (27%), TikTok (18%), Java (Programming Language) (18%), and Data Analysis (18%)	N/A
Web Developers	$55,570	Research (32%), Communications (31%), Detailed Oriented (22%), Innovation (21%), and Customer Service (19%)	User Experience (48%), JavaScript (Programming Language) (33%), Cascading Style Sheets (CSS) (32%), User Interface (30%), and Front End (Software Engineering) (30%)	N/A
Graphic Designers	$47,920	Communications (58%), Marketing (47%), Detail Oriented (39%), Presentations (31%), and Microsoft Office (24%)	Adobe Illustrator (68%), Adobe Photoshop (68%), Graphic Design (66%), Adobe Creative Suite (51%), and Adobe InDesign (51%)	N/A

Chart 5 shows the ethnicity and sex of people who work in the three focus occupations in NYC*****. As you can see, more males than females are employed as video game designers and web developers, while graphic designers in New York City are more evenly split between males and females. The most common ethnicity for workers in all three occupations is White, followed by Asian/Pacific Islander.

Chart 5: Sex and ethnicity distributions for 3 focus occupations								
	Ethnicity %						**Sex %**	
Occupation	**American Indian/ Alaska Native**	**Asian/ Pacific Islander**	**Black**	**Hispanic**	**White**	**Multi-ethnic/ Other**	**Female**	**Male**
Video Game Designers	0.40	27.89	17.46	12.98	37.53	3.74	21.23	78.77
Web Developers	0.00	26.89	6.81	13.28	49.25	3.76	28.06	71.94
Graphic Designers	0.00	19.05	10.00	15.63	52.75	2.56	51.42	48.58

Chart 6: Percentage distribution of education levels sought for job candidates in the 3 focus occupations in NYC, based on entry-level online job ads** 10/1/2021 - 3/31/2022

Post-secondary Planning

CTE students are encouraged to pursue education and training after graduation from high school in order to enter into an in-demand career with family-sustaining wages in NYC. The following is a list of CUNY degree programs aligned with the media and design industry as well as non-degree programs that result in an industry-endorsed certification and/or college credits. Some CTE programs have robust partnerships with CUNY programs that are codified by an articulation agreement. These agreements provide a range of student benefits such as advanced standing, early college credit, and preferential placement. CTE school leaders, teachers and work-based learning coordinators are encouraged to connect with the school counseling teams at their school to determine strong postsecondary options for their students. Please reach out to your Industry Engagement Manager for more information about the articulation agreements.

➢ Chart 7 is a sample of the over 60 CUNY programs focused on media and design spread across the five boroughs, ranging from certificate programs up through PhD degree opportunities. It is helpful to keep in mind the data from Chart 6, above, which suggests that having a post-secondary educational credential is valuable for job candidates in this field.

➢ Chart 8, on the following page, provides a list of non-degree media and design occupation-focused training opportunities available through a variety of different NYC-based organizations.

Chart 7: CUNY post-secondary programs related to media and design				
Borough	**School**	**Academic program**	**Credential********	**DOE/CUNY articulation agreement's benefits**
Bronx	Bronx CC	Computer Information Systems	AAS	
Bronx	Bronx CC	Digital Design	AAS	Prior Learning Credit: 6 credits
Bronx	Bronx CC	Computer Science and Media and Digital Film Production	AS	
Bronx	Hostos CC	Digital Design and Animation and Game Design	AAS	Prior Learning Credit: 6 credits
Bronx	Hostos CC	Computer Science	AS	
Bronx	Lehman College	Digital Technology and Electronics	Certificate	
Bronx	Lehman College	Computer Science, Film and TV Studies, Media Communication Studies	BA	
Bronx	Lehman College	Multimedia Performing Arts	BFA	
Bronx	Lehman College	Computer Graphics and Imaging, Computer Information Systems, and Computer Science	BS	
Bronx	Lehman College	Computer Science	MS	
Brooklyn	Brooklyn College	Film Production	Certificate	
Brooklyn	Brooklyn College	Communication and Film	BA	
Brooklyn	Brooklyn College	Computer Science, Multimedia Computing, and Information Systems	BS	
Brooklyn	Brooklyn College	Computer Science	MA	
Brooklyn	Brooklyn College	Information Systems	MS	
Brooklyn	Kingsborough CC	Computer Information Systems, Graphic Design and Illustration, and Website Development	AAS	
Brooklyn	Kingsborough CC	Computer Science, Graphic Design and Illustration, and Media Arts	AS	
Brooklyn	Medgar Evers College	Computer Applications	AAS	
Brooklyn	Medgar Evers College	Computer Science	AS	
Brooklyn	Medgar Evers College	Media and The Performing Arts	BFA	
Brooklyn	Medgar Evers College	Computer Information Systems and Computer Science	BS	
Brooklyn	NYC College of Tech	Video Production	Certificate	
Brooklyn	NYC College of Tech	Communication Design	AAS and BFA	Prior Learning Credit: 9 credits Advanced Standing Credit
Brooklyn	NYC College of Tech	Communication Design Management, and Industrial Design	AAS	
Brooklyn	NYC College of Tech	Computer Science, Computer Information Systems	AS/AAS	
Brooklyn	NYC College of Tech	Communication Design Management, Computer Engineering Technology, Computer Systems, and Emerging Media Technologies	BTECH	
Manhattan	Baruch College	Communication Studies	BA	
Manhattan	Baruch College	Computer Information Systems	BBA	
Manhattan	Baruch College	Information Systems	Executive MS and MS	
Manhattan	Borough of Manhattan CC	Communication Studies	AA	
Manhattan	Borough of Manhattan CC	Computer Science, Computer Information Systems	AS/AAS	

MEDIA & DESIGN

CTE LABOR MARKET TOOL

Manhattan	Borough of Manhattan CC	Animation and Motion Graphics, Multimedia Programming and Design, and Video Arts and Technology	AS	Prior Learning Credits: 3-6 credits
Manhattan	Borough of Manhattan CC	Theatre	AS	Prior Learning Credits: 8 credits
Manhattan	City College of New York	Communications	BA	
Manhattan	City College of New York	Computer Engineering	BE	
Manhattan	City College of New York	Electronic Design and Multimedia, Film and Video Production	BFA	
Manhattan	City College of New York	Computer Science	BS	
Manhattan	City College of New York	Digital & Interdisciplinary Art Practice	MFA	
Manhattan	City College of New York	Computer Engineering, Computer Science, Data Science and Engineering, and Information Systems	MS	
Manhattan	Graduate Center	Data Analysis and Visualization and Data Science	MS	
Manhattan	Graduate Center	Computer Science	PhD	
Manhattan	Guttman CC	Information Technology	AAS	
Manhattan	Hunter College	Cinema Studies (Film), Computer Science, and Media Studies	BA	
Manhattan	Hunter College	Computer Science	MS	
Manhattan	School of Professional Studies	Communication and Media	BA	
Manhattan	School of Professional Studies	Communication and Media and Information Systems	BS	
Queens	LaGuardia CC	Digital Media Arts Certificate	Certificate	
Queens	LaGuardia CC	Communications and Film and Television	AA	
Queens	LaGuardia CC	Computer Technology, Industrial Design Technology, New Media Technology, and Programming and Software Development	AAS	
Queens	LaGuardia CC	Computer Science	AS	
Queens	Queens College	Computer Science, Film Studies, and Media Studies	BA	
Queens	Queens College	Computer Science	BA/MA and BS	
Queens	Queens College	Computer Science	MA	
Queens	Queensborough CC	Computer Information Systems	Certificate	
Queens	Queensborough CC	Computer Engineering Technology and Computer Information Systems	AAS	
Queens	Queensborough CC	Digital Art and Design and Film and Media Production	AS	
Queens	York College	Communication Technology, Computer Science, and Information Systems Management	BS	
Staten Island	College of Staten Island	Computer Technology	AAS	
Staten Island	College of Staten Island	Cinema Studies and Communications	BA	
Staten Island	College of Staten Island	Information Systems and Informatics	BS	
Staten Island	College of Staten Island	Computer Science	MS	

Chart 8: Non-degree media and design training opportunities
ApprenticeNYC
Brooklyn Workforce Innovations' "Made in NY" Production Assistant Training Program
Brooklyn Workforce Innovations' "Made in NY" Post Production Training Program
COOP Tech's Graphic Design Program
CUNY's Continuing and Professional Education
Reel Works' MediaMKRS
Roundabout Theater Company's Theatre Administration/Management Apprenticeship Program

What Next? Guiding Questions & Web Resources

"Describe how current labor market data has informed program design and choice of technical assessment."

The prompts below are designed to promote discussion and ideas for program planning, and to help you answer the question above from the CTS self study tab and the NYSED CTE application (Part 2, Section C).

How can we incorporate this report's data insights into our…	Data points to consider:
…program focus?	Introductory paragraph overviews on page 1 and charts 1, 2, 3, 4
…technical and employability skills?	Chart 4
…articulation agreement?	Charts 6, 7
…technical assessments?	Chart 4
… career pathway options?	Charts 1,2, 7, 8

Consider the questions below keeping in mind the labor market data points you've explored in this report and the questions that you've answered above.

Select three ways that you might adjust your program in response to labor market data:

☐ Program focus   ☐ Articulation agreement   ☐ Technical assessments   ☐ Career pathway options

☐ Technical and employability skills   ☐ Other:

Which one of these three adjustments could most easily be implemented this school year?

Which one of the three would make the biggest difference for the quality of your program? Why?

Curious to explore more? Check out these web resources:

➢ CTE NYC website: www.cte.nyc
➢ CTE Industry Commission resources: bitly.com/CTEIndustryEngagement
➢ CTE College and Career Planning Team's postsecondary milestones toolkit: https://bit.ly/35uglcc
➢ CareerOneStop labor market data explorer: www.careeronestop.org

NYCCTE | NEW YORK CITY Career and Technical Education

NYC LMIS LABOR MARKET INFORMATION SERVICE

Technical Notes & Data Sources:

* "Media & Design" occupations have been operationalized as the following 2010 Standard Occupation Classification (SOC) codes:

SOC code	Occupation
15-1131.00	Computer Programmers
15-1132.00	Software Developers, Applications
15-1134.00	Web Developers
15-1199.10	Search Marketing Strategists
15-1199.11	Video Game Designers
27-1014.00	Multimedia Artists and Animators
27-1024.00	Graphic Designers

** These analyses were conducted using the EMSI Burning Glass Analyst proprietary web-based research platform. Please note that some intra-occupation percentage totals may equal >100% if the employer indicated a range of minimum/preferred years of experience or education-attainment level. "Entry-level" jobs are considered to be those with job advertisements that specified 0-1 year of experience.

*** New York City 2018-2028 long-term employment projections are determined by New York State Department of Labor (NYSDOL). Please note that these estimates include self-employed workers, which is not always true of other estimates such as the OEWS estimates.

**** NYSDOL, Occupational Employment and Wage Statistics (OEWS) estimates for New York City (July 2021 release). NYSDOL adjusted wages to reflect levels in the first quarter of 2021. NYSDOL operationalizes "Entry Wage" as the average of the bottom third of wages.

***** Demographics based on U.S. Census, American Community Survey (ACS) estimates, NYC 2015-2019 5-year sample, IPUMS release February 2021. Please note that the ACS does not ask for respondents' gender, only biological sex. As a result, there are only results available for male and female categories. To learn more about this, please see here: https://www.census.gov/acs/www/about/why-we-ask-each-question/sex/

****** AA denotes Associate in Arts; AAS denotes Associate in Applied Science; AS denotes Associate in Science; BA denotes Bachelor of Arts; BBA denotes Bachelor of Business Administration; BE denotes Bachelor of Engineering; BFA denotes Bachelor of Fine Arts; BS denotes Bachelor of Science; BTECH denotes Bachelor of Technology; MA denotes Master of Arts; MFA denotes Master of Fine Arts; MS denotes Master of Science; PhD denotes Doctor of Philosophy.

******* NYSDOL Occupational Employment and Wage Statistics (OEWS) provide estimates up to the 6-digit SOC code level of specificity. In order to provide labor market estimates for the Video Game Designers occupation (an 8-digit O*NET-SOC code level of specificity, 15-1199.11), when necessary we have used the broader 6-digit SOC code category that Video Game Designers is part of, "Computer Occupations, All Other" (15-1199). This affects the data in Chart 2, wage data in Chart 4, and Chart 5.

******** Massachusetts Institute of Technology's (MIT) Living Wage calculator, 2020 estimate for the five counties of New York City, NY (https://livingwage.mit.edu/metros/35620; data accessed April 2022), adjusted to the first quarter of 2021 using the U.S. Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (New York-Newark-Jersey City metropolitan area, not seasonally adjusted).

********* Additional skills that are in-demand as measured by being mentioned in at least 10% of online job ads for entry-level workers but not among the top 5 most frequently requested are:

Video Game Designers: Additional in-demand employability skills include ability to meet deadlines, editing, mentorship, operations, coordinating, management, presentations, program management, self starter, teamwork, and detail oriented. Additional in-demand technical skills include financial services, Adobe Photoshop, photography, Perl (programming language), Scala (programming language), and SQL (programming language).

Web Developers: Additional in-demand employability skills include marketing, leadership, management, planning, operations, presentations, problem solving, written communication, self-motivation, and interpersonal communications. Additional in-demand technical skills include computer science, prototyping, React.js, HyperText Markup Language (HTML), user experience design (UX), Agile methodology, application programming interface (API), Figma (design software), Amazon Web Services, Angular (web framework), software engineering, software development, product design, workflow management, scalability, wireframing, user research, RESTful API, full stack development, web development, Invision (design software), visual design, Java (programming language), product management, financial services, usability, usability testing, code review, user interface design, TypeScript, analytics, relational databases, front end design, and web applications.

MEDIA & DESIGN

Graphic Designers: Additional in-demand employability skills include ability to meet deadlines, innovation, Microsoft PowerPoint, packaging and labeling, research, sales, social media, organizational skills, problem solving, multitasking, positivity, customer service, self-motivation, editing, time management, management, creativity, willingness to learn, and planning. Additional in-demand technical skills include typography, illustration, Adobe After Effects, visual design, animations, branding, logo design, brochures, photography, brand management, workflow management, newsletters, templates, marketing materials, user interface, Cascading Style Sheets (CSS), and user experience.