

Duplication Tables

Duplication tables are used to estimate how many copies of a title will provide specified levels of availability: .50 (minimal), .68 (moderate), or .95 (full). Unlike other duplication systems, this approach is based on objective data from your own collection. The underlying formula is a simple tool crib model from the operations research literature. The estimate is calculated from the annual circulation totals in your library for the title itself, if that is available; from the annual circulation of the last title published by an author; or from the title turnover for a format, genre or topic.

Use Duplication Tables with existing titles and new purchases

These Duplication Tables will help you decide how many additional copies you need for high-demand titles in the existing collection. You may also use the tables to determine the number of duplicates for new fiction titles and picture books as you select them. High-demand topics in nonfiction also repay routine initial review.

Applying the tables in this way helps you anticipate demand rather than waiting for reserves to accumulate before adding copies. It also identifies mid-list authors and topics that may benefit from moderate duplication. This will boost the perceived variety of your collection, and can result in higher overall circulation than more extensive duplication of a few best-sellers.

Estimates will change to meet demand

The tables are sensitive to changes in demand, but the estimate is limited by the actual number of circulations in your

library's records for the title, author, or other factor that you investigate. If there is high unsatisfied demand, the existing records may not reflect total demand, and so the duplicate estimate may not be sufficient to meet the predicted level of availability. For this reason it is important to recalculate the estimates when a new title is issued by an author or after additional copies of an existing title have circulated for 6 months to a year.

Once demand is reflected accurately in the circulation record, the estimate will level out. The system is self-balancing in both directions; if demand for an author decreases, this reduces circulation totals and the duplication estimate will decrease.

Use annual circulation estimates

You must use annual circulation estimates with the tables; the underlying calculations assume one year's worth of data. If you have less (or more) than a year of data, annualize the totals by finding a monthly average and then multiplying by 12.

How to use the tables

I. Estimate the annual circulation for the title.

A. If you already own copies:

Determine the annual number of circulations by adding together the most recent annual circulation of all copies of the title that you own. Use the raw total of the circulations, not the average per copy.

OR

B. If you do not already own copies:

If you have other titles in the collection by the same author, determine the annual number of circulations for the most recent title in your collection by the author, as in “A” above. If the author writes in more than one genre, or publishes both fiction and nonfiction, you may also want to check the most recent title in the genre or format that most clearly matches the title at hand to take into account any variations in demand

OR

If the author is new to your collection, determine the title turnover for the format, genre, or topic. The title turnover is the average annual circulation of the *titles* (not copies). If title turnover cannot be calculated, you can use copy turnover, but doing so may underestimate the number of copies needed if the collection has a high ratio of copies to titles.

II. Use the Duplication Tables to find the number of copies you need:

A. Decide which table to use.

The tables are arranged by 1-week, 2-week, 3-week, and 4-week standard loan periods, then by the percentage of availability that you wish to achieve. Select the table that corresponds to the standard loan period for the title you are concerned with. Then choose 50% availability for minimal duplication, 68% availability for moderate duplication, or 95% availability for full duplication. You may also use the underlying formula to estimate 99% availability for an “always available” level of duplication.

B. Look up the number of copies in the table.

Locate the annual number of circulations you determined in Step 1 in the column labeled “Circs.” The number in the column to the right (“Copies”) is an estimate of the total number of copies you need for the availability level you have selected. If you already own copies of the title, subtract those from the copy estimate to determine the number of copies to add.

Separate tables show the number of copies needed for 50%, 68%, and 95% availability.

There are two pages for each availability level, covering titles with 1-300 and 301-600 circulations.

Tables are provided for 7, 14, 21, and 28 day loan periods

Loan Period: 21 Days Availability: 68% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	5.3	101	9.6	151	13.8	201	18.1	251	22.3
2	1.2	52	5.4	102	9.7	152	13.9	202	18.2	252	22.4
3	1.3	53	5.5	103	9.7	153	14.0	203	18.2	253	22.5
4	1.3	54	5.6	104	9.8	154	14.1	204	18.3	254	22.6
5	1.4	55	5.7	105	9.9	155	14.2	205	18.4	255	22.7
6	1.5	56	5.8	106	10.0	156	14.2	206	18.5	256	22.7
7	1.6	57	5.8	107	10.1	157	14.3	207	18.6	257	22.8
8	1.7	58	5.9	108	10.2	158	14.4	208	18.7	258	22.9
9	1.8	59	6.0	109	10.3	159	14.5	209	18.7	259	22.9
				110	10.3	160	14.6				
				111	10.4	161	14.7				
				112	10.5	162	14.8				
				113	10.6	163	14.8				
				114	10.7	164	14.9				
				115	10.8	165	15.0				
				116	10.9	166	15.1	216	19.3	266	23.6
				117	10.9	167	15.2	217	19.4	267	23.7
				118	11.0	168	15.3	218	19.5	268	23.8
				119	11.1	169	15.4	219	19.6	269	23.8
				120	11.2	170	15.4	220	19.7	270	23.9
				121	11.3	171	15.5	221	19.8	271	24.0
				122	11.4	172	15.6	222	19.9	272	24.1
				123	11.4	173	15.7	223	19.9	273	24.2
				124	11.5	174	15.8	224	20.0	274	24.3
25	3.1	75	7.4	125	11.6	175	15.9	225	20.1	275	24.4
26	3.2	76	7.5	126	11.7	176	15.9	226	20.2	276	24.4
27	3.3	77	7.5	127	11.8	177	16.0	227	20.3	277	24.5
28	3.4	78	7.6	128	11.9	178	16.1	228	20.4	278	24.6
29	3.5	79	7.7	129	12.0	179	16.2	229	20.4	279	24.7
30	3.5	80	7.8	130	12.0	180	16.3	230	20.5	280	24.8
31	3.6	81	7.9	131	12.1	181	16.4	231	20.6	281	24.9
32	3.7	82	8.0	132	12.2	182	16.5	232	20.7	282	25.0
33	3.8	83	8.0	133	12.3	183	16.5	233	20.8	283	25.0
34	3.9	84	8.1	134	12.4	184	16.6	234	20.9	284	25.1
35	4.0	85	8.2	135	12.5	185	16.7	235	21.0	285	25.2

Circ: In your library's circulation records, find the number of circulations for A) all copies of the title you already own, or B) if you don't already own the title, all copies of the last title published by the author. If there are no author data, use the title turnover of the format, genre or topic of the title. Estimate the number of annual circulations in the last year from the data.

Copies: This column shows the number of copies you need to meet the specified availability level, including any copies you already own.

Tips for Using the Tables

1. Over time, multiple copies of a title tend to have nearly the same number of circulations. If there are copies that have significantly lower circulation, they are probably missing. If they have been missing less than a year, convert their circulation to the average for the remaining titles and add that estimate to the total.
2. The tables require that the circulation estimate be annualized. If you have less than a year's worth of data for a title, convert the circulation to a full year by calculating a daily average and multiplying by 365. Keep in mind that the first few months of circulation are ordinarily the highest in the life of a title, and so estimates derived from just a few months of activity may be high. You need at least 4-6 months of data to be reasonably accurate. You can also use the technique of estimating annual circulation from a daily average if you have more than a year's worth of data, but beyond 18-24 months of circulation, the estimate may be too low to account for initial demand.
3. Fiction genre titles, such as mysteries and science fiction, tend to have an initial high circulation, but subside quickly once most avid followers of the genre have read the title. Be conservative about adding genre duplicates until you are familiar with the patterns for your own library. New titles in nonfiction should also be duplicated with caution until you have a sense of the underlying long-term demand.
4. Calculate the duplicates for multiple-branch libraries by determining the total number of copies needed for the system as a whole. Sum the annual circulation for all copies at all branches, and use that total to find the number of copies in the Duplication Tables. Allocate copies among branches by the share of total system circulation for the format, genre, or topic at each branch. This method favors larger branches, so it is wise to round up the estimate for smaller branches to the nearest full copy.
5. The tables may be used to estimate the number of copies of an older title to keep when you are weeding. Determine the most recent annual circulation for all copies of the title, and use that total to find the corresponding number of copies in the Duplication Tables. If you cannot determine the most recent annual circulation, use the average annual circulation over the life of the title. That will slightly overestimate the number of copies needed.

As you have already purchased the copies, this might be an instance when you apply a 99% availability rate, which you can calculate using the duplication formula in the Appendix. When you weed the extra copies, examine each one and discard those in the worst physical condition.
6. The tables provide estimates for titles with 1-600 annual circulations. If you have more than 600 annual circulations for a title, divide the total circulations into increments of 600 plus any remainder. Look up the copy estimates for 600 circulations and for the remainder. Multiply the estimate for 600 circulations by the number of increments of 600 that you have, and then add the estimate for the remainder. This will give you the total number of copies needed. This method works because at higher levels of circulation,

the formula is linear. The number of circulations and duplicates increase directly, at essentially the same rate.

7. Many libraries establish a copy per title maximum beyond which they buy no duplicates, no matter how high the demand. With the use of such a maximum as an indicator of the outer boundary of a library's duplication effort, it is possible to construct a scaled duplication table for a specific library. Such a table provides an initial high level of duplication (95% or 68% availability) for titles that are mid-range in demand, and then gradually reduces the duplication level to that of 50% availability, terminating at a maximum of the library's choosing. If you are interested in pursuing such an approach, contact Roy Kenagy: (515) 419-3394, rjkenagy@netins.net.
8. The Duplication Tables are based on a formula from the operations research literature used to solve the "tool crib" problem: estimating the number of shared tools required in a workplace to ensure that all workers are supplied with tools as needed, but that the tools are not oversupplied. The model makes use of the Expectation of Life formula, which underlies many of the mathematical relationships in collections work. The Appendix sets out both formulas and provides worksheets and article citations to aid in understanding them.
9. To make the tables easily accessible to libraries without requiring additional local research, I have applied several assumptions to the tool crib model. These assumptions, supported by empirical research by myself and others, are:
 - 1) the average recorded loan period of an item is roughly equal to the standard loan period for the item;

- 2) loan periods follow the normal distribution;
- 3) the standard deviation for the length of loan periods is around 10 days; and
- 4) items with identical loan periods and similar circulation histories will follow similar demand patterns.

If a library prefers to research and implement the exact tool crib variables for their own collections, the key measures are the mean and standard deviation for the recorded length of loans in each of the collections they wish to model.

10. I have introduced a constant of one copy to the tool crib model, again based on empirical experience. This front-loads the number of copies at initial levels of demand. The modification is a form of priming the breadth of the experienced collection, supporting variety at the shelf for browsing, and encouraging the circulation of mid-range authors and topics that are under-developed in conventional duplication practice concentrated on best sellers.
11. The tables account for circulations resulting from browsing as well as known-item requests. However, if circulation interference has resulted in annual circulation totals that underrepresent the demand for a title, the estimated number of copies may still be low. As an author publishes subsequent titles, this will tend to correct itself as the estimate comes closer to the satisfaction level. The tables also function in reverse: as demand for an author or topic decreases, the number of estimated copies will decrease. The estimates are not static, and should be revisited whenever a new title is published.

Loan Period: up to 7 Days Availability: 50% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.0	51	2.0	101	2.9	151	3.9	201	4.9	251	5.8
2	1.0	52	2.0	102	3.0	152	3.9	202	4.9	252	5.8
3	1.1	53	2.0	103	3.0	153	3.9	203	4.9	253	5.9
4	1.1	54	2.0	104	3.0	154	4.0	204	4.9	254	5.9
5	1.1	55	2.1	105	3.0	155	4.0	205	4.9	255	5.9
6	1.1	56	2.1	106	3.0	156	4.0	206	5.0	256	5.9
7	1.1	57	2.1	107	3.1	157	4.0	207	5.0	257	5.9
8	1.2	58	2.1	108	3.1	158	4.0	208	5.0	258	5.9
9	1.2	59	2.1	109	3.1	159	4.0	209	5.0	259	6.0
10	1.2	60	2.2	110	3.1	160	4.1	210	5.0	260	6.0
11	1.2	61	2.2	111	3.1	161	4.1	211	5.0	261	6.0
12	1.2	62	2.2	112	3.1	162	4.1	212	5.1	262	6.0
13	1.2	63	2.2	113	3.2	163	4.1	213	5.1	263	6.0
14	1.3	64	2.2	114	3.2	164	4.1	214	5.1	264	6.1
15	1.3	65	2.2	115	3.2	165	4.2	215	5.1	265	6.1
16	1.3	66	2.3	116	3.2	166	4.2	216	5.1	266	6.1
17	1.3	67	2.3	117	3.2	167	4.2	217	5.2	267	6.1
18	1.3	68	2.3	118	3.3	168	4.2	218	5.2	268	6.1
19	1.4	69	2.3	119	3.3	169	4.2	219	5.2	269	6.2
20	1.4	70	2.3	120	3.3	170	4.3	220	5.2	270	6.2
21	1.4	71	2.4	121	3.3	171	4.3	221	5.2	271	6.2
22	1.4	72	2.4	122	3.3	172	4.3	222	5.3	272	6.2
23	1.4	73	2.4	123	3.4	173	4.3	223	5.3	273	6.2
24	1.5	74	2.4	124	3.4	174	4.3	224	5.3	274	6.3
25	1.5	75	2.4	125	3.4	175	4.4	225	5.3	275	6.3
26	1.5	76	2.5	126	3.4	176	4.4	226	5.3	276	6.3
27	1.5	77	2.5	127	3.4	177	4.4	227	5.4	277	6.3
28	1.5	78	2.5	128	3.5	178	4.4	228	5.4	278	6.3
29	1.6	79	2.5	129	3.5	179	4.4	229	5.4	279	6.4
30	1.6	80	2.5	130	3.5	180	4.5	230	5.4	280	6.4
31	1.6	81	2.6	131	3.5	181	4.5	231	5.4	281	6.4
32	1.6	82	2.6	132	3.5	182	4.5	232	5.4	282	6.4
33	1.6	83	2.6	133	3.6	183	4.5	233	5.5	283	6.4
34	1.7	84	2.6	134	3.6	184	4.5	234	5.5	284	6.4
35	1.7	85	2.6	135	3.6	185	4.5	235	5.5	285	6.5
36	1.7	86	2.6	136	3.6	186	4.6	236	5.5	286	6.5
37	1.7	87	2.7	137	3.6	187	4.6	237	5.5	287	6.5
38	1.7	88	2.7	138	3.6	188	4.6	238	5.6	288	6.5
39	1.7	89	2.7	139	3.7	189	4.6	239	5.6	289	6.5
40	1.8	90	2.7	140	3.7	190	4.6	240	5.6	290	6.6
41	1.8	91	2.7	141	3.7	191	4.7	241	5.6	291	6.6
42	1.8	92	2.8	142	3.7	192	4.7	242	5.6	292	6.6
43	1.8	93	2.8	143	3.7	193	4.7	243	5.7	293	6.6
44	1.8	94	2.8	144	3.8	194	4.7	244	5.7	294	6.6
45	1.9	95	2.8	145	3.8	195	4.7	245	5.7	295	6.7
46	1.9	96	2.8	146	3.8	196	4.8	246	5.7	296	6.7
47	1.9	97	2.9	147	3.8	197	4.8	247	5.7	297	6.7
48	1.9	98	2.9	148	3.8	198	4.8	248	5.8	298	6.7
49	1.9	99	2.9	149	3.9	199	4.8	249	5.8	299	6.7
50	2.0	100	2.9	150	3.9	200	4.8	250	5.8	300	6.8

Loan Period: up to 7 Days

Availability: 50%

Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	6.8	351	7.7	401	8.7	451	9.6	501	10.6	551	11.6
302	6.8	352	7.8	402	8.7	452	9.7	502	10.6	552	11.6
303	6.8	353	7.8	403	8.7	453	9.7	503	10.6	553	11.6
304	6.8	354	7.8	404	8.7	454	9.7	504	10.7	554	11.6
305	6.8	355	7.8	405	8.8	455	9.7	505	10.7	555	11.6
306	6.9	356	7.8	406	8.8	456	9.7	506	10.7	556	11.7
307	6.9	357	7.8	407	8.8	457	9.8	507	10.7	557	11.7
308	6.9	358	7.9	408	8.8	458	9.8	508	10.7	558	11.7
309	6.9	359	7.9	409	8.8	459	9.8	509	10.8	559	11.7
310	6.9	360	7.9	410	8.9	460	9.8	510	10.8	560	11.7
311	7.0	361	7.9	411	8.9	461	9.8	511	10.8	561	11.8
312	7.0	362	7.9	412	8.9	462	9.9	512	10.8	562	11.8
313	7.0	363	8.0	413	8.9	463	9.9	513	10.8	563	11.8
314	7.0	364	8.0	414	8.9	464	9.9	514	10.9	564	11.8
315	7.0	365	8.0	415	9.0	465	9.9	515	10.9	565	11.8
316	7.1	366	8.0	416	9.0	466	9.9	516	10.9	566	11.9
317	7.1	367	8.0	417	9.0	467	10.0	517	10.9	567	11.9
318	7.1	368	8.1	418	9.0	468	10.0	518	10.9	568	11.9
319	7.1	369	8.1	419	9.0	469	10.0	519	11.0	569	11.9
320	7.1	370	8.1	420	9.1	470	10.0	520	11.0	570	11.9
321	7.2	371	8.1	421	9.1	471	10.0	521	11.0	571	12.0
322	7.2	372	8.1	422	9.1	472	10.1	522	11.0	572	12.0
323	7.2	373	8.2	423	9.1	473	10.1	523	11.0	573	12.0
324	7.2	374	8.2	424	9.1	474	10.1	524	11.0	574	12.0
325	7.2	375	8.2	425	9.2	475	10.1	525	11.1	575	12.0
326	7.3	376	8.2	426	9.2	476	10.1	526	11.1	576	12.0
327	7.3	377	8.2	427	9.2	477	10.1	527	11.1	577	12.1
328	7.3	378	8.2	428	9.2	478	10.2	528	11.1	578	12.1
329	7.3	379	8.3	429	9.2	479	10.2	529	11.1	579	12.1
330	7.3	380	8.3	430	9.2	480	10.2	530	11.2	580	12.1
331	7.3	381	8.3	431	9.3	481	10.2	531	11.2	581	12.1
332	7.4	382	8.3	432	9.3	482	10.2	532	11.2	582	12.2
333	7.4	383	8.3	433	9.3	483	10.3	533	11.2	583	12.2
334	7.4	384	8.4	434	9.3	484	10.3	534	11.2	584	12.2
335	7.4	385	8.4	435	9.3	485	10.3	535	11.3	585	12.2
336	7.4	386	8.4	436	9.4	486	10.3	536	11.3	586	12.2
337	7.5	387	8.4	437	9.4	487	10.3	537	11.3	587	12.3
338	7.5	388	8.4	438	9.4	488	10.4	538	11.3	588	12.3
339	7.5	389	8.5	439	9.4	489	10.4	539	11.3	589	12.3
340	7.5	390	8.5	440	9.4	490	10.4	540	11.4	590	12.3
341	7.5	391	8.5	441	9.5	491	10.4	541	11.4	591	12.3
342	7.6	392	8.5	442	9.5	492	10.4	542	11.4	592	12.4
343	7.6	393	8.5	443	9.5	493	10.5	543	11.4	593	12.4
344	7.6	394	8.6	444	9.5	494	10.5	544	11.4	594	12.4
345	7.6	395	8.6	445	9.5	495	10.5	545	11.5	595	12.4
346	7.6	396	8.6	446	9.6	496	10.5	546	11.5	596	12.4
347	7.7	397	8.6	447	9.6	497	10.5	547	11.5	597	12.4
348	7.7	398	8.6	448	9.6	498	10.6	548	11.5	598	12.5
349	7.7	399	8.7	449	9.6	499	10.6	549	11.5	599	12.5
350	7.7	400	8.7	450	9.6	500	10.6	550	11.5	600	12.5

Loan Period: up to 7 Days

Availability: 68%

Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.0	51	3.4	101	5.7	151	8.0	201	10.4	251	12.7
2	1.1	52	3.4	102	5.8	152	8.1	202	10.4	252	12.7
3	1.1	53	3.5	103	5.8	153	8.1	203	10.5	253	12.8
4	1.2	54	3.5	104	5.8	154	8.2	204	10.5	254	12.8
5	1.2	55	3.6	105	5.9	155	8.2	205	10.5	255	12.9
6	1.3	56	3.6	106	5.9	156	8.3	206	10.6	256	12.9
7	1.3	57	3.7	107	6.0	157	8.3	207	10.6	257	13.0
8	1.4	58	3.7	108	6.0	158	8.4	208	10.7	258	13.0
9	1.4	59	3.7	109	6.1	159	8.4	209	10.7	259	13.1
10	1.5	60	3.8	110	6.1	160	8.5	210	10.8	260	13.1
11	1.5	61	3.8	111	6.2	161	8.5	211	10.8	261	13.2
12	1.6	62	3.9	112	6.2	162	8.5	212	10.9	262	13.2
13	1.6	63	3.9	113	6.3	163	8.6	213	10.9	263	13.2
14	1.7	64	4.0	114	6.3	164	8.6	214	11.0	264	13.3
15	1.7	65	4.0	115	6.4	165	8.7	215	11.0	265	13.3
16	1.7	66	4.1	116	6.4	166	8.7	216	11.1	266	13.4
17	1.8	67	4.1	117	6.4	167	8.8	217	11.1	267	13.4
18	1.8	68	4.2	118	6.5	168	8.8	218	11.2	268	13.5
19	1.9	69	4.2	119	6.5	169	8.9	219	11.2	269	13.5
20	1.9	70	4.3	120	6.6	170	8.9	220	11.2	270	13.6
21	2.0	71	4.3	121	6.6	171	9.0	221	11.3	271	13.6
22	2.0	72	4.4	122	6.7	172	9.0	222	11.3	272	13.7
23	2.1	73	4.4	123	6.7	173	9.1	223	11.4	273	13.7
24	2.1	74	4.4	124	6.8	174	9.1	224	11.4	274	13.8
25	2.2	75	4.5	125	6.8	175	9.2	225	11.5	275	13.8
26	2.2	76	4.5	126	6.9	176	9.2	226	11.5	276	13.9
27	2.3	77	4.6	127	6.9	177	9.2	227	11.6	277	13.9
28	2.3	78	4.6	128	7.0	178	9.3	228	11.6	278	13.9
29	2.4	79	4.7	129	7.0	179	9.3	229	11.7	279	14.0
30	2.4	80	4.7	130	7.1	180	9.4	230	11.7	280	14.0
31	2.4	81	4.8	131	7.1	181	9.4	231	11.8	281	14.1
32	2.5	82	4.8	132	7.1	182	9.5	232	11.8	282	14.1
33	2.5	83	4.9	133	7.2	183	9.5	233	11.9	283	14.2
34	2.6	84	4.9	134	7.2	184	9.6	234	11.9	284	14.2
35	2.6	85	5.0	135	7.3	185	9.6	235	11.9	285	14.3
36	2.7	86	5.0	136	7.3	186	9.7	236	12.0	286	14.3
37	2.7	87	5.1	137	7.4	187	9.7	237	12.0	287	14.4
38	2.8	88	5.1	138	7.4	188	9.8	238	12.1	288	14.4
39	2.8	89	5.1	139	7.5	189	9.8	239	12.1	289	14.5
40	2.9	90	5.2	140	7.5	190	9.8	240	12.2	290	14.5
41	2.9	91	5.2	141	7.6	191	9.9	241	12.2	291	14.6
42	3.0	92	5.3	142	7.6	192	9.9	242	12.3	292	14.6
43	3.0	93	5.3	143	7.7	193	10.0	243	12.3	293	14.6
44	3.0	94	5.4	144	7.7	194	10.0	244	12.4	294	14.7
45	3.1	95	5.4	145	7.8	195	10.1	245	12.4	295	14.7
46	3.1	96	5.5	146	7.8	196	10.1	246	12.5	296	14.8
47	3.2	97	5.5	147	7.8	197	10.2	247	12.5	297	14.8
48	3.2	98	5.6	148	7.9	198	10.2	248	12.6	298	14.9
49	3.3	99	5.6	149	7.9	199	10.3	249	12.6	299	14.9
50	3.3	100	5.7	150	8.0	200	10.3	250	12.6	300	15.0

Loan Period: up to 7 Days

Availability: 68%

Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	15.0	351	17.3	401	19.7	451	22.0	501	24.3	551	26.7
302	15.1	352	17.4	402	19.7	452	22.1	502	24.4	552	26.7
303	15.1	353	17.4	403	19.8	453	22.1	503	24.4	553	26.8
304	15.2	354	17.5	404	19.8	454	22.1	504	24.5	554	26.8
305	15.2	355	17.5	405	19.9	455	22.2	505	24.5	555	26.8
306	15.3	356	17.6	406	19.9	456	22.2	506	24.6	556	26.9
307	15.3	357	17.6	407	20.0	457	22.3	507	24.6	557	26.9
308	15.3	358	17.7	408	20.0	458	22.3	508	24.7	558	27.0
309	15.4	359	17.7	409	20.0	459	22.4	509	24.7	559	27.0
310	15.4	360	17.8	410	20.1	460	22.4	510	24.8	560	27.1
311	15.5	361	17.8	411	20.1	461	22.5	511	24.8	561	27.1
312	15.5	362	17.9	412	20.2	462	22.5	512	24.8	562	27.2
313	15.6	363	17.9	413	20.2	463	22.6	513	24.9	563	27.2
314	15.6	364	18.0	414	20.3	464	22.6	514	24.9	564	27.3
315	15.7	365	18.0	415	20.3	465	22.7	515	25.0	565	27.3
316	15.7	366	18.0	416	20.4	466	22.7	516	25.0	566	27.4
317	15.8	367	18.1	417	20.4	467	22.8	517	25.1	567	27.4
318	15.8	368	18.1	418	20.5	468	22.8	518	25.1	568	27.5
319	15.9	369	18.2	419	20.5	469	22.8	519	25.2	569	27.5
320	15.9	370	18.2	420	20.6	470	22.9	520	25.2	570	27.5
321	16.0	371	18.3	421	20.6	471	22.9	521	25.3	571	27.6
322	16.0	372	18.3	422	20.7	472	23.0	522	25.3	572	27.6
323	16.0	373	18.4	423	20.7	473	23.0	523	25.4	573	27.7
324	16.1	374	18.4	424	20.7	474	23.1	524	25.4	574	27.7
325	16.1	375	18.5	425	20.8	475	23.1	525	25.5	575	27.8
326	16.2	376	18.5	426	20.8	476	23.2	526	25.5	576	27.8
327	16.2	377	18.6	427	20.9	477	23.2	527	25.5	577	27.9
328	16.3	378	18.6	428	20.9	478	23.3	528	25.6	578	27.9
329	16.3	379	18.7	429	21.0	479	23.3	529	25.6	579	28.0
330	16.4	380	18.7	430	21.0	480	23.4	530	25.7	580	28.0
331	16.4	381	18.7	431	21.1	481	23.4	531	25.7	581	28.1
332	16.5	382	18.8	432	21.1	482	23.4	532	25.8	582	28.1
333	16.5	383	18.8	433	21.2	483	23.5	533	25.8	583	28.2
334	16.6	384	18.9	434	21.2	484	23.5	534	25.9	584	28.2
335	16.6	385	18.9	435	21.3	485	23.6	535	25.9	585	28.2
336	16.6	386	19.0	436	21.3	486	23.6	536	26.0	586	28.3
337	16.7	387	19.0	437	21.4	487	23.7	537	26.0	587	28.3
338	16.7	388	19.1	438	21.4	488	23.7	538	26.1	588	28.4
339	16.8	389	19.1	439	21.4	489	23.8	539	26.1	589	28.4
340	16.8	390	19.2	440	21.5	490	23.8	540	26.2	590	28.5
341	16.9	391	19.2	441	21.5	491	23.9	541	26.2	591	28.5
342	16.9	392	19.3	442	21.6	492	23.9	542	26.2	592	28.6
343	17.0	393	19.3	443	21.6	493	24.0	543	26.3	593	28.6
344	17.0	394	19.4	444	21.7	494	24.0	544	26.3	594	28.7
345	17.1	395	19.4	445	21.7	495	24.1	545	26.4	595	28.7
346	17.1	396	19.4	446	21.8	496	24.1	546	26.4	596	28.8
347	17.2	397	19.5	447	21.8	497	24.1	547	26.5	597	28.8
348	17.2	398	19.5	448	21.9	498	24.2	548	26.5	598	28.9
349	17.3	399	19.6	449	21.9	499	24.2	549	26.6	599	28.9
350	17.3	400	19.6	450	22.0	500	24.3	550	26.6	600	28.9

Loan Period: up to 7 Days Availability: 95% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	4.8	101	8.5	151	12.2	201	15.9	251	19.6
2	1.1	52	4.8	102	8.5	152	12.2	202	15.9	252	19.6
3	1.2	53	4.9	103	8.6	153	12.3	203	16.0	253	19.7
4	1.3	54	5.0	104	8.7	154	12.4	204	16.1	254	19.8
5	1.4	55	5.1	105	8.8	155	12.5	205	16.2	255	19.9
6	1.4	56	5.1	106	8.8	156	12.5	206	16.2	256	19.9
7	1.5	57	5.2	107	8.9	157	12.6	207	16.3	257	20.0
8	1.6	58	5.3	108	9.0	158	12.7	208	16.4	258	20.1
9	1.7	59	5.4	109	9.1	159	12.8	209	16.5	259	20.2
10	1.7	60	5.4	110	9.1	160	12.8	210	16.5	260	20.2
11	1.8	61	5.5	111	9.2	161	12.9	211	16.6	261	20.3
12	1.9	62	5.6	112	9.3	162	13.0	212	16.7	262	20.4
13	2.0	63	5.7	113	9.4	163	13.1	213	16.8	263	20.5
14	2.0	64	5.7	114	9.4	164	13.1	214	16.8	264	20.5
15	2.1	65	5.8	115	9.5	165	13.2	215	16.9	265	20.6
16	2.2	66	5.9	116	9.6	166	13.3	216	17.0	266	20.7
17	2.3	67	6.0	117	9.7	167	13.4	217	17.1	267	20.8
18	2.3	68	6.0	118	9.7	168	13.4	218	17.1	268	20.8
19	2.4	69	6.1	119	9.8	169	13.5	219	17.2	269	20.9
20	2.5	70	6.2	120	9.9	170	13.6	220	17.3	270	21.0
21	2.6	71	6.3	121	10.0	171	13.6	221	17.3	271	21.0
22	2.6	72	6.3	122	10.0	172	13.7	222	17.4	272	21.1
23	2.7	73	6.4	123	10.1	173	13.8	223	17.5	273	21.2
24	2.8	74	6.5	124	10.2	174	13.9	224	17.6	274	21.3
25	2.8	75	6.5	125	10.2	175	13.9	225	17.6	275	21.3
26	2.9	76	6.6	126	10.3	176	14.0	226	17.7	276	21.4
27	3.0	77	6.7	127	10.4	177	14.1	227	17.8	277	21.5
28	3.1	78	6.8	128	10.5	178	14.2	228	17.9	278	21.6
29	3.1	79	6.8	129	10.5	179	14.2	229	17.9	279	21.6
30	3.2	80	6.9	130	10.6	180	14.3	230	18.0	280	21.7
31	3.3	81	7.0	131	10.7	181	14.4	231	18.1	281	21.8
32	3.4	82	7.1	132	10.8	182	14.5	232	18.2	282	21.9
33	3.4	83	7.1	133	10.8	183	14.5	233	18.2	283	21.9
34	3.5	84	7.2	134	10.9	184	14.6	234	18.3	284	22.0
35	3.6	85	7.3	135	11.0	185	14.7	235	18.4	285	22.1
36	3.7	86	7.4	136	11.1	186	14.8	236	18.5	286	22.2
37	3.7	87	7.4	137	11.1	187	14.8	237	18.5	287	22.2
38	3.8	88	7.5	138	11.2	188	14.9	238	18.6	288	22.3
39	3.9	89	7.6	139	11.3	189	15.0	239	18.7	289	22.4
40	4.0	90	7.7	140	11.4	190	15.1	240	18.8	290	22.5
41	4.0	91	7.7	141	11.4	191	15.1	241	18.8	291	22.5
42	4.1	92	7.8	142	11.5	192	15.2	242	18.9	292	22.6
43	4.2	93	7.9	143	11.6	193	15.3	243	19.0	293	22.7
44	4.3	94	8.0	144	11.7	194	15.4	244	19.0	294	22.7
45	4.3	95	8.0	145	11.7	195	15.4	245	19.1	295	22.8
46	4.4	96	8.1	146	11.8	196	15.5	246	19.2	296	22.9
47	4.5	97	8.2	147	11.9	197	15.6	247	19.3	297	23.0
48	4.6	98	8.2	148	11.9	198	15.6	248	19.3	298	23.0
49	4.6	99	8.3	149	12.0	199	15.7	249	19.4	299	23.1
50	4.7	100	8.4	150	12.1	200	15.8	250	19.5	300	23.2

Loan Period: up to 7 Days**Availability: 95%****Circulations: 301 - 600**

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	23.3	351	27.0	401	30.7	451	34.4	501	38.1	551	41.8
302	23.3	352	27.0	402	30.7	452	34.4	502	38.1	552	41.8
303	23.4	353	27.1	403	30.8	453	34.5	503	38.2	553	41.9
304	23.5	354	27.2	404	30.9	454	34.6	504	38.3	554	42.0
305	23.6	355	27.3	405	31.0	455	34.7	505	38.4	555	42.1
306	23.6	356	27.3	406	31.0	456	34.7	506	38.4	556	42.1
307	23.7	357	27.4	407	31.1	457	34.8	507	38.5	557	42.2
308	23.8	358	27.5	408	31.2	458	34.9	508	38.6	558	42.3
309	23.9	359	27.6	409	31.3	459	35.0	509	38.7	559	42.4
310	23.9	360	27.6	410	31.3	460	35.0	510	38.7	560	42.4
311	24.0	361	27.7	411	31.4	461	35.1	511	38.8	561	42.5
312	24.1	362	27.8	412	31.5	462	35.2	512	38.9	562	42.6
313	24.2	363	27.9	413	31.6	463	35.2	513	38.9	563	42.6
314	24.2	364	27.9	414	31.6	464	35.3	514	39.0	564	42.7
315	24.3	365	28.0	415	31.7	465	35.4	515	39.1	565	42.8
316	24.4	366	28.1	416	31.8	466	35.5	516	39.2	566	42.9
317	24.4	367	28.1	417	31.8	467	35.5	517	39.2	567	42.9
318	24.5	368	28.2	418	31.9	468	35.6	518	39.3	568	43.0
319	24.6	369	28.3	419	32.0	469	35.7	519	39.4	569	43.1
320	24.7	370	28.4	420	32.1	470	35.8	520	39.5	570	43.2
321	24.7	371	28.4	421	32.1	471	35.8	521	39.5	571	43.2
322	24.8	372	28.5	422	32.2	472	35.9	522	39.6	572	43.3
323	24.9	373	28.6	423	32.3	473	36.0	523	39.7	573	43.4
324	25.0	374	28.7	424	32.4	474	36.1	524	39.8	574	43.5
325	25.0	375	28.7	425	32.4	475	36.1	525	39.8	575	43.5
326	25.1	376	28.8	426	32.5	476	36.2	526	39.9	576	43.6
327	25.2	377	28.9	427	32.6	477	36.3	527	40.0	577	43.7
328	25.3	378	29.0	428	32.7	478	36.4	528	40.1	578	43.8
329	25.3	379	29.0	429	32.7	479	36.4	529	40.1	579	43.8
330	25.4	380	29.1	430	32.8	480	36.5	530	40.2	580	43.9
331	25.5	381	29.2	431	32.9	481	36.6	531	40.3	581	44.0
332	25.6	382	29.3	432	33.0	482	36.7	532	40.4	582	44.1
333	25.6	383	29.3	433	33.0	483	36.7	533	40.4	583	44.1
334	25.7	384	29.4	434	33.1	484	36.8	534	40.5	584	44.2
335	25.8	385	29.5	435	33.2	485	36.9	535	40.6	585	44.3
336	25.9	386	29.6	436	33.3	486	37.0	536	40.6	586	44.3
337	25.9	387	29.6	437	33.3	487	37.0	537	40.7	587	44.4
338	26.0	388	29.7	438	33.4	488	37.1	538	40.8	588	44.5
339	26.1	389	29.8	439	33.5	489	37.2	539	40.9	589	44.6
340	26.2	390	29.8	440	33.5	490	37.2	540	40.9	590	44.6
341	26.2	391	29.9	441	33.6	491	37.3	541	41.0	591	44.7
342	26.3	392	30.0	442	33.7	492	37.4	542	41.1	592	44.8
343	26.4	393	30.1	443	33.8	493	37.5	543	41.2	593	44.9
344	26.4	394	30.1	444	33.8	494	37.5	544	41.2	594	44.9
345	26.5	395	30.2	445	33.9	495	37.6	545	41.3	595	45.0
346	26.6	396	30.3	446	34.0	496	37.7	546	41.4	596	45.1
347	26.7	397	30.4	447	34.1	497	37.8	547	41.5	597	45.2
348	26.7	398	30.4	448	34.1	498	37.8	548	41.5	598	45.2
349	26.8	399	30.5	449	34.2	499	37.9	549	41.6	599	45.3
350	26.9	400	30.6	450	34.3	500	38.0	550	41.7	600	45.4

Loan Period: 14 Days Availability: 50% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.0	51	3.0	101	4.9	151	6.8	201	8.7	251	10.6
2	1.1	52	3.0	102	4.9	152	6.8	202	8.7	252	10.7
3	1.1	53	3.0	103	5.0	153	6.9	203	8.8	253	10.7
4	1.2	54	3.1	104	5.0	154	6.9	204	8.8	254	10.7
5	1.2	55	3.1	105	5.0	155	6.9	205	8.9	255	10.8
6	1.2	56	3.1	106	5.1	156	7.0	206	8.9	256	10.8
7	1.3	57	3.2	107	5.1	157	7.0	207	8.9	257	10.9
8	1.3	58	3.2	108	5.1	158	7.1	208	9.0	258	10.9
9	1.3	59	3.3	109	5.2	159	7.1	209	9.0	259	10.9
10	1.4	60	3.3	110	5.2	160	7.1	210	9.1	260	11.0
11	1.4	61	3.3	111	5.3	161	7.2	211	9.1	261	11.0
12	1.5	62	3.4	112	5.3	162	7.2	212	9.1	262	11.0
13	1.5	63	3.4	113	5.3	163	7.3	213	9.2	263	11.1
14	1.5	64	3.5	114	5.4	164	7.3	214	9.2	264	11.1
15	1.6	65	3.5	115	5.4	165	7.3	215	9.2	265	11.2
16	1.6	66	3.5	116	5.4	166	7.4	216	9.3	266	11.2
17	1.7	67	3.6	117	5.5	167	7.4	217	9.3	267	11.2
18	1.7	68	3.6	118	5.5	168	7.4	218	9.4	268	11.3
19	1.7	69	3.6	119	5.6	169	7.5	219	9.4	269	11.3
20	1.8	70	3.7	120	5.6	170	7.5	220	9.4	270	11.4
21	1.8	71	3.7	121	5.6	171	7.6	221	9.5	271	11.4
22	1.8	72	3.8	122	5.7	172	7.6	222	9.5	272	11.4
23	1.9	73	3.8	123	5.7	173	7.6	223	9.6	273	11.5
24	1.9	74	3.8	124	5.8	174	7.7	224	9.6	274	11.5
25	2.0	75	3.9	125	5.8	175	7.7	225	9.6	275	11.5
26	2.0	76	3.9	126	5.8	176	7.8	226	9.7	276	11.6
27	2.0	77	4.0	127	5.9	177	7.8	227	9.7	277	11.6
28	2.1	78	4.0	128	5.9	178	7.8	228	9.7	278	11.7
29	2.1	79	4.0	129	5.9	179	7.9	229	9.8	279	11.7
30	2.2	80	4.1	130	6.0	180	7.9	230	9.8	280	11.7
31	2.2	81	4.1	131	6.0	181	7.9	231	9.9	281	11.8
32	2.2	82	4.1	132	6.1	182	8.0	232	9.9	282	11.8
33	2.3	83	4.2	133	6.1	183	8.0	233	9.9	283	11.9
34	2.3	84	4.2	134	6.1	184	8.1	234	10.0	284	11.9
35	2.3	85	4.3	135	6.2	185	8.1	235	10.0	285	11.9
36	2.4	86	4.3	136	6.2	186	8.1	236	10.1	286	12.0
37	2.4	87	4.3	137	6.3	187	8.2	237	10.1	287	12.0
38	2.5	88	4.4	138	6.3	188	8.2	238	10.1	288	12.0
39	2.5	89	4.4	139	6.3	189	8.2	239	10.2	289	12.1
40	2.5	90	4.5	140	6.4	190	8.3	240	10.2	290	12.1
41	2.6	91	4.5	141	6.4	191	8.3	241	10.2	291	12.2
42	2.6	92	4.5	142	6.4	192	8.4	242	10.3	292	12.2
43	2.6	93	4.6	143	6.5	193	8.4	243	10.3	293	12.2
44	2.7	94	4.6	144	6.5	194	8.4	244	10.4	294	12.3
45	2.7	95	4.6	145	6.6	195	8.5	245	10.4	295	12.3
46	2.8	96	4.7	146	6.6	196	8.5	246	10.4	296	12.4
47	2.8	97	4.7	147	6.6	197	8.6	247	10.5	297	12.4
48	2.8	98	4.8	148	6.7	198	8.6	248	10.5	298	12.4
49	2.9	99	4.8	149	6.7	199	8.6	249	10.6	299	12.5
50	2.9	100	4.8	150	6.8	200	8.7	250	10.6	300	12.5

Loan Period: 14 Days Availability: 50% Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	12.5	351	14.5	401	16.4	451	18.3	501	20.2	551	22.1
302	12.6	352	14.5	402	16.4	452	18.3	502	20.3	552	22.2
303	12.6	353	14.5	403	16.5	453	18.4	503	20.3	553	22.2
304	12.7	354	14.6	404	16.5	454	18.4	504	20.3	554	22.2
305	12.7	355	14.6	405	16.5	455	18.5	505	20.4	555	22.3
306	12.7	356	14.7	406	16.6	456	18.5	506	20.4	556	22.3
307	12.8	357	14.7	407	16.6	457	18.5	507	20.4	557	22.4
308	12.8	358	14.7	408	16.6	458	18.6	508	20.5	558	22.4
309	12.9	359	14.8	409	16.7	459	18.6	509	20.5	559	22.4
310	12.9	360	14.8	410	16.7	460	18.6	510	20.6	560	22.5
311	12.9	361	14.8	411	16.8	461	18.7	511	20.6	561	22.5
312	13.0	362	14.9	412	16.8	462	18.7	512	20.6	562	22.6
313	13.0	363	14.9	413	16.8	463	18.8	513	20.7	563	22.6
314	13.0	364	15.0	414	16.9	464	18.8	514	20.7	564	22.6
315	13.1	365	15.0	415	16.9	465	18.8	515	20.8	565	22.7
316	13.1	366	15.0	416	17.0	466	18.9	516	20.8	566	22.7
317	13.2	367	15.1	417	17.0	467	18.9	517	20.8	567	22.7
318	13.2	368	15.1	418	17.0	468	19.0	518	20.9	568	22.8
319	13.2	369	15.2	419	17.1	469	19.0	519	20.9	569	22.8
320	13.3	370	15.2	420	17.1	470	19.0	520	20.9	570	22.9
321	13.3	371	15.2	421	17.1	471	19.1	521	21.0	571	22.9
322	13.4	372	15.3	422	17.2	472	19.1	522	21.0	572	22.9
323	13.4	373	15.3	423	17.2	473	19.1	523	21.1	573	23.0
324	13.4	374	15.3	424	17.3	474	19.2	524	21.1	574	23.0
325	13.5	375	15.4	425	17.3	475	19.2	525	21.1	575	23.1
326	13.5	376	15.4	426	17.3	476	19.3	526	21.2	576	23.1
327	13.5	377	15.5	427	17.4	477	19.3	527	21.2	577	23.1
328	13.6	378	15.5	428	17.4	478	19.3	528	21.3	578	23.2
329	13.6	379	15.5	429	17.5	479	19.4	529	21.3	579	23.2
330	13.7	380	15.6	430	17.5	480	19.4	530	21.3	580	23.2
331	13.7	381	15.6	431	17.5	481	19.4	531	21.4	581	23.3
332	13.7	382	15.7	432	17.6	482	19.5	532	21.4	582	23.3
333	13.8	383	15.7	433	17.6	483	19.5	533	21.4	583	23.4
334	13.8	384	15.7	434	17.6	484	19.6	534	21.5	584	23.4
335	13.8	385	15.8	435	17.7	485	19.6	535	21.5	585	23.4
336	13.9	386	15.8	436	17.7	486	19.6	536	21.6	586	23.5
337	13.9	387	15.8	437	17.8	487	19.7	537	21.6	587	23.5
338	14.0	388	15.9	438	17.8	488	19.7	538	21.6	588	23.6
339	14.0	389	15.9	439	17.8	489	19.8	539	21.7	589	23.6
340	14.0	390	16.0	440	17.9	490	19.8	540	21.7	590	23.6
341	14.1	391	16.0	441	17.9	491	19.8	541	21.8	591	23.7
342	14.1	392	16.0	442	18.0	492	19.9	542	21.8	592	23.7
343	14.2	393	16.1	443	18.0	493	19.9	543	21.8	593	23.7
344	14.2	394	16.1	444	18.0	494	19.9	544	21.9	594	23.8
345	14.2	395	16.2	445	18.1	495	20.0	545	21.9	595	23.8
346	14.3	396	16.2	446	18.1	496	20.0	546	21.9	596	23.9
347	14.3	397	16.2	447	18.1	497	20.1	547	22.0	597	23.9
348	14.3	398	16.3	448	18.2	498	20.1	548	22.0	598	23.9
349	14.4	399	16.3	449	18.2	499	20.1	549	22.1	599	24.0
350	14.4	400	16.3	450	18.3	500	20.2	550	22.1	600	24.0

Loan Period: 14 Days Availability: 68% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	4.4	101	7.6	151	10.9	201	14.2	251	17.5
2	1.1	52	4.4	102	7.7	152	11.0	202	14.3	252	17.6
3	1.2	53	4.5	103	7.8	153	11.1	203	14.3	253	17.6
4	1.3	54	4.6	104	7.8	154	11.1	204	14.4	254	17.7
5	1.3	55	4.6	105	7.9	155	11.2	205	14.5	255	17.8
6	1.4	56	4.7	106	8.0	156	11.3	206	14.5	256	17.8
7	1.5	57	4.7	107	8.0	157	11.3	207	14.6	257	17.9
8	1.5	58	4.8	108	8.1	158	11.4	208	14.7	258	18.0
9	1.6	59	4.9	109	8.2	159	11.5	209	14.7	259	18.0
10	1.7	60	4.9	110	8.2	160	11.5	210	14.8	260	18.1
11	1.7	61	5.0	111	8.3	161	11.6	211	14.9	261	18.2
12	1.8	62	5.1	112	8.4	162	11.7	212	14.9	262	18.2
13	1.9	63	5.1	113	8.4	163	11.7	213	15.0	263	18.3
14	1.9	64	5.2	114	8.5	164	11.8	214	15.1	264	18.4
15	2.0	65	5.3	115	8.6	165	11.8	215	15.1	265	18.4
16	2.1	66	5.3	116	8.6	166	11.9	216	15.2	266	18.5
17	2.1	67	5.4	117	8.7	167	12.0	217	15.3	267	18.6
18	2.2	68	5.5	118	8.8	168	12.0	218	15.3	268	18.6
19	2.2	69	5.5	119	8.8	169	12.1	219	15.4	269	18.7
20	2.3	70	5.6	120	8.9	170	12.2	220	15.5	270	18.8
21	2.4	71	5.7	121	9.0	171	12.2	221	15.5	271	18.8
22	2.4	72	5.7	122	9.0	172	12.3	222	15.6	272	18.9
23	2.5	73	5.8	123	9.1	173	12.4	223	15.7	273	19.0
24	2.6	74	5.9	124	9.2	174	12.4	224	15.7	274	19.0
25	2.6	75	5.9	125	9.2	175	12.5	225	15.8	275	19.1
26	2.7	76	6.0	126	9.3	176	12.6	226	15.9	276	19.1
27	2.8	77	6.1	127	9.4	177	12.6	227	15.9	277	19.2
28	2.8	78	6.1	128	9.4	178	12.7	228	16.0	278	19.3
29	2.9	79	6.2	129	9.5	179	12.8	229	16.1	279	19.3
30	3.0	80	6.3	130	9.5	180	12.8	230	16.1	280	19.4
31	3.0	81	6.3	131	9.6	181	12.9	231	16.2	281	19.5
32	3.1	82	6.4	132	9.7	182	13.0	232	16.3	282	19.5
33	3.2	83	6.5	133	9.7	183	13.0	233	16.3	283	19.6
34	3.2	84	6.5	134	9.8	184	13.1	234	16.4	284	19.7
35	3.3	85	6.6	135	9.9	185	13.2	235	16.5	285	19.7
36	3.4	86	6.7	136	9.9	186	13.2	236	16.5	286	19.8
37	3.4	87	6.7	137	10.0	187	13.3	237	16.6	287	19.9
38	3.5	88	6.8	138	10.1	188	13.4	238	16.6	288	19.9
39	3.6	89	6.9	139	10.1	189	13.4	239	16.7	289	20.0
40	3.6	90	6.9	140	10.2	190	13.5	240	16.8	290	20.1
41	3.7	91	7.0	141	10.3	191	13.6	241	16.8	291	20.1
42	3.8	92	7.0	142	10.3	192	13.6	242	16.9	292	20.2
43	3.8	93	7.1	143	10.4	193	13.7	243	17.0	293	20.3
44	3.9	94	7.2	144	10.5	194	13.8	244	17.0	294	20.3
45	4.0	95	7.2	145	10.5	195	13.8	245	17.1	295	20.4
46	4.0	96	7.3	146	10.6	196	13.9	246	17.2	296	20.5
47	4.1	97	7.4	147	10.7	197	14.0	247	17.2	297	20.5
48	4.2	98	7.4	148	10.7	198	14.0	248	17.3	298	20.6
49	4.2	99	7.5	149	10.8	199	14.1	249	17.4	299	20.7
50	4.3	100	7.6	150	10.9	200	14.2	250	17.4	300	20.7

Loan Period: 14 Days Availability: 68% Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	20.8	351	24.1	401	27.4	451	30.7	501	33.9	551	37.2
302	20.9	352	24.1	402	27.4	452	30.7	502	34.0	552	37.3
303	20.9	353	24.2	403	27.5	453	30.8	503	34.1	553	37.4
304	21.0	354	24.3	404	27.6	454	30.9	504	34.1	554	37.4
305	21.1	355	24.3	405	27.6	455	30.9	505	34.2	555	37.5
306	21.1	356	24.4	406	27.7	456	31.0	506	34.3	556	37.6
307	21.2	357	24.5	407	27.8	457	31.0	507	34.3	557	37.6
308	21.3	358	24.5	408	27.8	458	31.1	508	34.4	558	37.7
309	21.3	359	24.6	409	27.9	459	31.2	509	34.5	559	37.8
310	21.4	360	24.7	410	28.0	460	31.2	510	34.5	560	37.8
311	21.4	361	24.7	411	28.0	461	31.3	511	34.6	561	37.9
312	21.5	362	24.8	412	28.1	462	31.4	512	34.7	562	38.0
313	21.6	363	24.9	413	28.2	463	31.4	513	34.7	563	38.0
314	21.6	364	24.9	414	28.2	464	31.5	514	34.8	564	38.1
315	21.7	365	25.0	415	28.3	465	31.6	515	34.9	565	38.2
316	21.8	366	25.1	416	28.4	466	31.6	516	34.9	566	38.2
317	21.8	367	25.1	417	28.4	467	31.7	517	35.0	567	38.3
318	21.9	368	25.2	418	28.5	468	31.8	518	35.1	568	38.3
319	22.0	369	25.3	419	28.6	469	31.8	519	35.1	569	38.4
320	22.0	370	25.3	420	28.6	470	31.9	520	35.2	570	38.5
321	22.1	371	25.4	421	28.7	471	32.0	521	35.3	571	38.5
322	22.2	372	25.5	422	28.7	472	32.0	522	35.3	572	38.6
323	22.2	373	25.5	423	28.8	473	32.1	523	35.4	573	38.7
324	22.3	374	25.6	424	28.9	474	32.2	524	35.5	574	38.7
325	22.4	375	25.7	425	28.9	475	32.2	525	35.5	575	38.8
326	22.4	376	25.7	426	29.0	476	32.3	526	35.6	576	38.9
327	22.5	377	25.8	427	29.1	477	32.4	527	35.7	577	38.9
328	22.6	378	25.9	428	29.1	478	32.4	528	35.7	578	39.0
329	22.6	379	25.9	429	29.2	479	32.5	529	35.8	579	39.1
330	22.7	380	26.0	430	29.3	480	32.6	530	35.8	580	39.1
331	22.8	381	26.1	431	29.3	481	32.6	531	35.9	581	39.2
332	22.8	382	26.1	432	29.4	482	32.7	532	36.0	582	39.3
333	22.9	383	26.2	433	29.5	483	32.8	533	36.0	583	39.3
334	23.0	384	26.2	434	29.5	484	32.8	534	36.1	584	39.4
335	23.0	385	26.3	435	29.6	485	32.9	535	36.2	585	39.5
336	23.1	386	26.4	436	29.7	486	33.0	536	36.2	586	39.5
337	23.2	387	26.4	437	29.7	487	33.0	537	36.3	587	39.6
338	23.2	388	26.5	438	29.8	488	33.1	538	36.4	588	39.7
339	23.3	389	26.6	439	29.9	489	33.2	539	36.4	589	39.7
340	23.4	390	26.6	440	29.9	490	33.2	540	36.5	590	39.8
341	23.4	391	26.7	441	30.0	491	33.3	541	36.6	591	39.9
342	23.5	392	26.8	442	30.1	492	33.4	542	36.6	592	39.9
343	23.6	393	26.8	443	30.1	493	33.4	543	36.7	593	40.0
344	23.6	394	26.9	444	30.2	494	33.5	544	36.8	594	40.1
345	23.7	395	27.0	445	30.3	495	33.5	545	36.8	595	40.1
346	23.8	396	27.0	446	30.3	496	33.6	546	36.9	596	40.2
347	23.8	397	27.1	447	30.4	497	33.7	547	37.0	597	40.3
348	23.9	398	27.2	448	30.5	498	33.7	548	37.0	598	40.3
349	23.9	399	27.2	449	30.5	499	33.8	549	37.1	599	40.4
350	24.0	400	27.3	450	30.6	500	33.9	550	37.2	600	40.5

Loan Period: 14 Days Availability: 95% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	5.8	101	10.4	151	15.1	201	19.7	251	24.4
2	1.2	52	5.8	102	10.5	152	15.2	202	19.8	252	24.5
3	1.3	53	5.9	103	10.6	153	15.3	203	19.9	253	24.6
4	1.4	54	6.0	104	10.7	154	15.3	204	20.0	254	24.7
5	1.5	55	6.1	105	10.8	155	15.4	205	20.1	255	24.8
6	1.6	56	6.2	106	10.9	156	15.5	206	20.2	256	24.8
7	1.7	57	6.3	107	11.0	157	15.6	207	20.3	257	24.9
8	1.7	58	6.4	108	11.1	158	15.7	208	20.4	258	25.0
9	1.8	59	6.5	109	11.2	159	15.8	209	20.5	259	25.1
10	1.9	60	6.6	110	11.2	160	15.9	210	20.6	260	25.2
11	2.0	61	6.7	111	11.3	161	16.0	211	20.7	261	25.3
12	2.1	62	6.8	112	11.4	162	16.1	212	20.7	262	25.4
13	2.2	63	6.9	113	11.5	163	16.2	213	20.8	263	25.5
14	2.3	64	7.0	114	11.6	164	16.3	214	20.9	264	25.6
15	2.4	65	7.1	115	11.7	165	16.4	215	21.0	265	25.7
16	2.5	66	7.1	116	11.8	166	16.5	216	21.1	266	25.8
17	2.6	67	7.2	117	11.9	167	16.6	217	21.2	267	25.9
18	2.7	68	7.3	118	12.0	168	16.6	218	21.3	268	26.0
19	2.8	69	7.4	119	12.1	169	16.7	219	21.4	269	26.1
20	2.9	70	7.5	120	12.2	170	16.8	220	21.5	270	26.2
21	3.0	71	7.6	121	12.3	171	16.9	221	21.6	271	26.2
22	3.0	72	7.7	122	12.4	172	17.0	222	21.7	272	26.3
23	3.1	73	7.8	123	12.5	173	17.1	223	21.8	273	26.4
24	3.2	74	7.9	124	12.6	174	17.2	224	21.9	274	26.5
25	3.3	75	8.0	125	12.6	175	17.3	225	22.0	275	26.6
26	3.4	76	8.1	126	12.7	176	17.4	226	22.1	276	26.7
27	3.5	77	8.2	127	12.8	177	17.5	227	22.1	277	26.8
28	3.6	78	8.3	128	12.9	178	17.6	228	22.2	278	26.9
29	3.7	79	8.4	129	13.0	179	17.7	229	22.3	279	27.0
30	3.8	80	8.5	130	13.1	180	17.8	230	22.4	280	27.1
31	3.9	81	8.5	131	13.2	181	17.9	231	22.5	281	27.2
32	4.0	82	8.6	132	13.3	182	18.0	232	22.6	282	27.3
33	4.1	83	8.7	133	13.4	183	18.0	233	22.7	283	27.4
34	4.2	84	8.8	134	13.5	184	18.1	234	22.8	284	27.5
35	4.3	85	8.9	135	13.6	185	18.2	235	22.9	285	27.5
36	4.4	86	9.0	136	13.7	186	18.3	236	23.0	286	27.6
37	4.4	87	9.1	137	13.8	187	18.4	237	23.1	287	27.7
38	4.5	88	9.2	138	13.9	188	18.5	238	23.2	288	27.8
39	4.6	89	9.3	139	13.9	189	18.6	239	23.3	289	27.9
40	4.7	90	9.4	140	14.0	190	18.7	240	23.4	290	28.0
41	4.8	91	9.5	141	14.1	191	18.8	241	23.4	291	28.1
42	4.9	92	9.6	142	14.2	192	18.9	242	23.5	292	28.2
43	5.0	93	9.7	143	14.3	193	19.0	243	23.6	293	28.3
44	5.1	94	9.8	144	14.4	194	19.1	244	23.7	294	28.4
45	5.2	95	9.8	145	14.5	195	19.2	245	23.8	295	28.5
46	5.3	96	9.9	146	14.6	196	19.3	246	23.9	296	28.6
47	5.4	97	10.0	147	14.7	197	19.4	247	24.0	297	28.7
48	5.5	98	10.1	148	14.8	198	19.4	248	24.1	298	28.8
49	5.6	99	10.2	149	14.9	199	19.5	249	24.2	299	28.9
50	5.7	100	10.3	150	15.0	200	19.6	250	24.3	300	28.9

Loan Period: 14 Days Availability: 95% Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	29.0	351	33.7	401	38.4	451	43.0	501	47.7	551	52.3
302	29.1	352	33.8	402	38.4	452	43.1	502	47.8	552	52.4
303	29.2	353	33.9	403	38.5	453	43.2	503	47.9	553	52.5
304	29.3	354	34.0	404	38.6	454	43.3	504	47.9	554	52.6
305	29.4	355	34.1	405	38.7	455	43.4	505	48.0	555	52.7
306	29.5	356	34.2	406	38.8	456	43.5	506	48.1	556	52.8
307	29.6	357	34.3	407	38.9	457	43.6	507	48.2	557	52.9
308	29.7	358	34.3	408	39.0	458	43.7	508	48.3	558	53.0
309	29.8	359	34.4	409	39.1	459	43.8	509	48.4	559	53.1
310	29.9	360	34.5	410	39.2	460	43.8	510	48.5	560	53.2
311	30.0	361	34.6	411	39.3	461	43.9	511	48.6	561	53.3
312	30.1	362	34.7	412	39.4	462	44.0	512	48.7	562	53.4
313	30.2	363	34.8	413	39.5	463	44.1	513	48.8	563	53.4
314	30.2	364	34.9	414	39.6	464	44.2	514	48.9	564	53.5
315	30.3	365	35.0	415	39.7	465	44.3	515	49.0	565	53.6
316	30.4	366	35.1	416	39.8	466	44.4	516	49.1	566	53.7
317	30.5	367	35.2	417	39.8	467	44.5	517	49.2	567	53.8
318	30.6	368	35.3	418	39.9	468	44.6	518	49.3	568	53.9
319	30.7	369	35.4	419	40.0	469	44.7	519	49.3	569	54.0
320	30.8	370	35.5	420	40.1	470	44.8	520	49.4	570	54.1
321	30.9	371	35.6	421	40.2	471	44.9	521	49.5	571	54.2
322	31.0	372	35.7	422	40.3	472	45.0	522	49.6	572	54.3
323	31.1	373	35.7	423	40.4	473	45.1	523	49.7	573	54.4
324	31.2	374	35.8	424	40.5	474	45.2	524	49.8	574	54.5
325	31.3	375	35.9	425	40.6	475	45.2	525	49.9	575	54.6
326	31.4	376	36.0	426	40.7	476	45.3	526	50.0	576	54.7
327	31.5	377	36.1	427	40.8	477	45.4	527	50.1	577	54.7
328	31.6	378	36.2	428	40.9	478	45.5	528	50.2	578	54.8
329	31.6	379	36.3	429	41.0	479	45.6	529	50.3	579	54.9
330	31.7	380	36.4	430	41.1	480	45.7	530	50.4	580	55.0
331	31.8	381	36.5	431	41.1	481	45.8	531	50.5	581	55.1
332	31.9	382	36.6	432	41.2	482	45.9	532	50.6	582	55.2
333	32.0	383	36.7	433	41.3	483	46.0	533	50.6	583	55.3
334	32.1	384	36.8	434	41.4	484	46.1	534	50.7	584	55.4
335	32.2	385	36.9	435	41.5	485	46.2	535	50.8	585	55.5
336	32.3	386	37.0	436	41.6	486	46.3	536	50.9	586	55.6
337	32.4	387	37.0	437	41.7	487	46.4	537	51.0	587	55.7
338	32.5	388	37.1	438	41.8	488	46.5	538	51.1	588	55.8
339	32.6	389	37.2	439	41.9	489	46.6	539	51.2	589	55.9
340	32.7	390	37.3	440	42.0	490	46.6	540	51.3	590	56.0
341	32.8	391	37.4	441	42.1	491	46.7	541	51.4	591	56.1
342	32.9	392	37.5	442	42.2	492	46.8	542	51.5	592	56.1
343	33.0	393	37.6	443	42.3	493	46.9	543	51.6	593	56.2
344	33.0	394	37.7	444	42.4	494	47.0	544	51.7	594	56.3
345	33.1	395	37.8	445	42.5	495	47.1	545	51.8	595	56.4
346	33.2	396	37.9	446	42.5	496	47.2	546	51.9	596	56.5
347	33.3	397	38.0	447	42.6	497	47.3	547	52.0	597	56.6
348	33.4	398	38.1	448	42.7	498	47.4	548	52.0	598	56.7
349	33.5	399	38.2	449	42.8	499	47.5	549	52.1	599	56.8
350	33.6	400	38.3	450	42.9	500	47.6	550	52.2	600	56.9

Loan Period: 21 Days Availability: 50% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	3.9	101	6.8	151	9.7	201	12.6	251	15.4
2	1.1	52	4.0	102	6.9	152	9.7	202	12.6	252	15.5
3	1.2	53	4.0	103	6.9	153	9.8	203	12.7	253	15.6
4	1.2	54	4.1	104	7.0	154	9.9	204	12.7	254	15.6
5	1.3	55	4.2	105	7.0	155	9.9	205	12.8	255	15.7
6	1.3	56	4.2	106	7.1	156	10.0	206	12.9	256	15.7
7	1.4	57	4.3	107	7.2	157	10.0	207	12.9	257	15.8
8	1.5	58	4.3	108	7.2	158	10.1	208	13.0	258	15.8
9	1.5	59	4.4	109	7.3	159	10.1	209	13.0	259	15.9
10	1.6	60	4.5	110	7.3	160	10.2	210	13.1	260	16.0
11	1.6	61	4.5	111	7.4	161	10.3	211	13.1	261	16.0
12	1.7	62	4.6	112	7.4	162	10.3	212	13.2	262	16.1
13	1.7	63	4.6	113	7.5	163	10.4	213	13.3	263	16.1
14	1.8	64	4.7	114	7.6	164	10.4	214	13.3	264	16.2
15	1.9	65	4.7	115	7.6	165	10.5	215	13.4	265	16.2
16	1.9	66	4.8	116	7.7	166	10.6	216	13.4	266	16.3
17	2.0	67	4.9	117	7.7	167	10.6	217	13.5	267	16.4
18	2.0	68	4.9	118	7.8	168	10.7	218	13.5	268	16.4
19	2.1	69	5.0	119	7.8	169	10.7	219	13.6	269	16.5
20	2.2	70	5.0	120	7.9	170	10.8	220	13.7	270	16.5
21	2.2	71	5.1	121	8.0	171	10.8	221	13.7	271	16.6
22	2.3	72	5.1	122	8.0	172	10.9	222	13.8	272	16.6
23	2.3	73	5.2	123	8.1	173	11.0	223	13.8	273	16.7
24	2.4	74	5.3	124	8.1	174	11.0	224	13.9	274	16.8
25	2.4	75	5.3	125	8.2	175	11.1	225	13.9	275	16.8
26	2.5	76	5.4	126	8.2	176	11.1	226	14.0	276	16.9
27	2.6	77	5.4	127	8.3	177	11.2	227	14.1	277	16.9
28	2.6	78	5.5	128	8.4	178	11.2	228	14.1	278	17.0
29	2.7	79	5.5	129	8.4	179	11.3	229	14.2	279	17.1
30	2.7	80	5.6	130	8.5	180	11.4	230	14.2	280	17.1
31	2.8	81	5.7	131	8.5	181	11.4	231	14.3	281	17.2
32	2.8	82	5.7	132	8.6	182	11.5	232	14.3	282	17.2
33	2.9	83	5.8	133	8.7	183	11.5	233	14.4	283	17.3
34	3.0	84	5.8	134	8.7	184	11.6	234	14.5	284	17.3
35	3.0	85	5.9	135	8.8	185	11.6	235	14.5	285	17.4
36	3.1	86	5.9	136	8.8	186	11.7	236	14.6	286	17.5
37	3.1	87	6.0	137	8.9	187	11.8	237	14.6	287	17.5
38	3.2	88	6.1	138	8.9	188	11.8	238	14.7	288	17.6
39	3.2	89	6.1	139	9.0	189	11.9	239	14.8	289	17.6
40	3.3	90	6.2	140	9.1	190	11.9	240	14.8	290	17.7
41	3.4	91	6.2	141	9.1	191	12.0	241	14.9	291	17.7
42	3.4	92	6.3	142	9.2	192	12.0	242	14.9	292	17.8
43	3.5	93	6.4	143	9.2	193	12.1	243	15.0	293	17.9
44	3.5	94	6.4	144	9.3	194	12.2	244	15.0	294	17.9
45	3.6	95	6.5	145	9.3	195	12.2	245	15.1	295	18.0
46	3.6	96	6.5	146	9.4	196	12.3	246	15.2	296	18.0
47	3.7	97	6.6	147	9.5	197	12.3	247	15.2	297	18.1
48	3.8	98	6.6	148	9.5	198	12.4	248	15.3	298	18.1
49	3.8	99	6.7	149	9.6	199	12.4	249	15.3	299	18.2
50	3.9	100	6.8	150	9.6	200	12.5	250	15.4	300	18.3

Loan Period: 21 Days Availability: 50% Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	18.3	351	21.2	401	24.1	451	26.9	501	29.8	551	32.7
302	18.4	352	21.3	402	24.1	452	27.0	502	29.9	552	32.8
303	18.4	353	21.3	403	24.2	453	27.1	503	29.9	553	32.8
304	18.5	354	21.4	404	24.2	454	27.1	504	30.0	554	32.9
305	18.5	355	21.4	405	24.3	455	27.2	505	30.1	555	32.9
306	18.6	356	21.5	406	24.4	456	27.2	506	30.1	556	33.0
307	18.7	357	21.5	407	24.4	457	27.3	507	30.2	557	33.0
308	18.7	358	21.6	408	24.5	458	27.4	508	30.2	558	33.1
309	18.8	359	21.7	409	24.5	459	27.4	509	30.3	559	33.2
310	18.8	360	21.7	410	24.6	460	27.5	510	30.3	560	33.2
311	18.9	361	21.8	411	24.6	461	27.5	511	30.4	561	33.3
312	19.0	362	21.8	412	24.7	462	27.6	512	30.5	562	33.3
313	19.0	363	21.9	413	24.8	463	27.6	513	30.5	563	33.4
314	19.1	364	21.9	414	24.8	464	27.7	514	30.6	564	33.4
315	19.1	365	22.0	415	24.9	465	27.8	515	30.6	565	33.5
316	19.2	366	22.1	416	24.9	466	27.8	516	30.7	566	33.6
317	19.2	367	22.1	417	25.0	467	27.9	517	30.7	567	33.6
318	19.3	368	22.2	418	25.0	468	27.9	518	30.8	568	33.7
319	19.4	369	22.2	419	25.1	469	28.0	519	30.9	569	33.7
320	19.4	370	22.3	420	25.2	470	28.0	520	30.9	570	33.8
321	19.5	371	22.3	421	25.2	471	28.1	521	31.0	571	33.9
322	19.5	372	22.4	422	25.3	472	28.2	522	31.0	572	33.9
323	19.6	373	22.5	423	25.3	473	28.2	523	31.1	573	34.0
324	19.6	374	22.5	424	25.4	474	28.3	524	31.1	574	34.0
325	19.7	375	22.6	425	25.5	475	28.3	525	31.2	575	34.1
326	19.8	376	22.6	426	25.5	476	28.4	526	31.3	576	34.1
327	19.8	377	22.7	427	25.6	477	28.4	527	31.3	577	34.2
328	19.9	378	22.7	428	25.6	478	28.5	528	31.4	578	34.3
329	19.9	379	22.8	429	25.7	479	28.6	529	31.4	579	34.3
330	20.0	380	22.9	430	25.7	480	28.6	530	31.5	580	34.4
331	20.0	381	22.9	431	25.8	481	28.7	531	31.6	581	34.4
332	20.1	382	23.0	432	25.9	482	28.7	532	31.6	582	34.5
333	20.2	383	23.0	433	25.9	483	28.8	533	31.7	583	34.5
334	20.2	384	23.1	434	26.0	484	28.8	534	31.7	584	34.6
335	20.3	385	23.2	435	26.0	485	28.9	535	31.8	585	34.7
336	20.3	386	23.2	436	26.1	486	29.0	536	31.8	586	34.7
337	20.4	387	23.3	437	26.1	487	29.0	537	31.9	587	34.8
338	20.4	388	23.3	438	26.2	488	29.1	538	32.0	588	34.8
339	20.5	389	23.4	439	26.3	489	29.1	539	32.0	589	34.9
340	20.6	390	23.4	440	26.3	490	29.2	540	32.1	590	34.9
341	20.6	391	23.5	441	26.4	491	29.2	541	32.1	591	35.0
342	20.7	392	23.6	442	26.4	492	29.3	542	32.2	592	35.1
343	20.7	393	23.6	443	26.5	493	29.4	543	32.2	593	35.1
344	20.8	394	23.7	444	26.5	494	29.4	544	32.3	594	35.2
345	20.8	395	23.7	445	26.6	495	29.5	545	32.4	595	35.2
346	20.9	396	23.8	446	26.7	496	29.5	546	32.4	596	35.3
347	21.0	397	23.8	447	26.7	497	29.6	547	32.5	597	35.3
348	21.0	398	23.9	448	26.8	498	29.7	548	32.5	598	35.4
349	21.1	399	24.0	449	26.8	499	29.7	549	32.6	599	35.5
350	21.1	400	24.0	450	26.9	500	29.8	550	32.6	600	35.5

Loan Period: 21 Days Availability: 68% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	5.3	101	9.6	151	13.8	201	18.1	251	22.3
2	1.2	52	5.4	102	9.7	152	13.9	202	18.2	252	22.4
3	1.3	53	5.5	103	9.7	153	14.0	203	18.2	253	22.5
4	1.3	54	5.6	104	9.8	154	14.1	204	18.3	254	22.6
5	1.4	55	5.7	105	9.9	155	14.2	205	18.4	255	22.7
6	1.5	56	5.8	106	10.0	156	14.2	206	18.5	256	22.7
7	1.6	57	5.8	107	10.1	157	14.3	207	18.6	257	22.8
8	1.7	58	5.9	108	10.2	158	14.4	208	18.7	258	22.9
9	1.8	59	6.0	109	10.3	159	14.5	209	18.8	259	23.0
10	1.8	60	6.1	110	10.3	160	14.6	210	18.8	260	23.1
11	1.9	61	6.2	111	10.4	161	14.7	211	18.9	261	23.2
12	2.0	62	6.3	112	10.5	162	14.8	212	19.0	262	23.3
13	2.1	63	6.4	113	10.6	163	14.8	213	19.1	263	23.3
14	2.2	64	6.4	114	10.7	164	14.9	214	19.2	264	23.4
15	2.3	65	6.5	115	10.8	165	15.0	215	19.3	265	23.5
16	2.4	66	6.6	116	10.9	166	15.1	216	19.3	266	23.6
17	2.4	67	6.7	117	10.9	167	15.2	217	19.4	267	23.7
18	2.5	68	6.8	118	11.0	168	15.3	218	19.5	268	23.8
19	2.6	69	6.9	119	11.1	169	15.4	219	19.6	269	23.8
20	2.7	70	6.9	120	11.2	170	15.4	220	19.7	270	23.9
21	2.8	71	7.0	121	11.3	171	15.5	221	19.8	271	24.0
22	2.9	72	7.1	122	11.4	172	15.6	222	19.9	272	24.1
23	3.0	73	7.2	123	11.4	173	15.7	223	19.9	273	24.2
24	3.0	74	7.3	124	11.5	174	15.8	224	20.0	274	24.3
25	3.1	75	7.4	125	11.6	175	15.9	225	20.1	275	24.4
26	3.2	76	7.5	126	11.7	176	15.9	226	20.2	276	24.4
27	3.3	77	7.5	127	11.8	177	16.0	227	20.3	277	24.5
28	3.4	78	7.6	128	11.9	178	16.1	228	20.4	278	24.6
29	3.5	79	7.7	129	12.0	179	16.2	229	20.4	279	24.7
30	3.5	80	7.8	130	12.0	180	16.3	230	20.5	280	24.8
31	3.6	81	7.9	131	12.1	181	16.4	231	20.6	281	24.9
32	3.7	82	8.0	132	12.2	182	16.5	232	20.7	282	25.0
33	3.8	83	8.0	133	12.3	183	16.5	233	20.8	283	25.0
34	3.9	84	8.1	134	12.4	184	16.6	234	20.9	284	25.1
35	4.0	85	8.2	135	12.5	185	16.7	235	21.0	285	25.2
36	4.1	86	8.3	136	12.6	186	16.8	236	21.0	286	25.3
37	4.1	87	8.4	137	12.6	187	16.9	237	21.1	287	25.4
38	4.2	88	8.5	138	12.7	188	17.0	238	21.2	288	25.5
39	4.3	89	8.6	139	12.8	189	17.1	239	21.3	289	25.5
40	4.4	90	8.6	140	12.9	190	17.1	240	21.4	290	25.6
41	4.5	91	8.7	141	13.0	191	17.2	241	21.5	291	25.7
42	4.6	92	8.8	142	13.1	192	17.3	242	21.6	292	25.8
43	4.7	93	8.9	143	13.1	193	17.4	243	21.6	293	25.9
44	4.7	94	9.0	144	13.2	194	17.5	244	21.7	294	26.0
45	4.8	95	9.1	145	13.3	195	17.6	245	21.8	295	26.1
46	4.9	96	9.2	146	13.4	196	17.6	246	21.9	296	26.1
47	5.0	97	9.2	147	13.5	197	17.7	247	22.0	297	26.2
48	5.1	98	9.3	148	13.6	198	17.8	248	22.1	298	26.3
49	5.2	99	9.4	149	13.7	199	17.9	249	22.1	299	26.4
50	5.2	100	9.5	150	13.7	200	18.0	250	22.2	300	26.5

Loan Period: 21 Days Availability: 68% Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	26.6	351	30.8	401	35.1	451	39.3	501	43.6	551	47.8
302	26.6	352	30.9	402	35.1	452	39.4	502	43.6	552	47.9
303	26.7	353	31.0	403	35.2	453	39.5	503	43.7	553	48.0
304	26.8	354	31.1	404	35.3	454	39.6	504	43.8	554	48.1
305	26.9	355	31.2	405	35.4	455	39.6	505	43.9	555	48.1
306	27.0	356	31.2	406	35.5	456	39.7	506	44.0	556	48.2
307	27.1	357	31.3	407	35.6	457	39.8	507	44.1	557	48.3
308	27.2	358	31.4	408	35.7	458	39.9	508	44.1	558	48.4
309	27.2	359	31.5	409	35.7	459	40.0	509	44.2	559	48.5
310	27.3	360	31.6	410	35.8	460	40.1	510	44.3	560	48.6
311	27.4	361	31.7	411	35.9	461	40.2	511	44.4	561	48.6
312	27.5	362	31.7	412	36.0	462	40.2	512	44.5	562	48.7
313	27.6	363	31.8	413	36.1	463	40.3	513	44.6	563	48.8
314	27.7	364	31.9	414	36.2	464	40.4	514	44.7	564	48.9
315	27.8	365	32.0	415	36.2	465	40.5	515	44.7	565	49.0
316	27.8	366	32.1	416	36.3	466	40.6	516	44.8	566	49.1
317	27.9	367	32.2	417	36.4	467	40.7	517	44.9	567	49.2
318	28.0	368	32.3	418	36.5	468	40.7	518	45.0	568	49.2
319	28.1	369	32.3	419	36.6	469	40.8	519	45.1	569	49.3
320	28.2	370	32.4	420	36.7	470	40.9	520	45.2	570	49.4
321	28.3	371	32.5	421	36.8	471	41.0	521	45.2	571	49.5
322	28.3	372	32.6	422	36.8	472	41.1	522	45.3	572	49.6
323	28.4	373	32.7	423	36.9	473	41.2	523	45.4	573	49.7
324	28.5	374	32.8	424	37.0	474	41.3	524	45.5	574	49.8
325	28.6	375	32.8	425	37.1	475	41.3	525	45.6	575	49.8
326	28.7	376	32.9	426	37.2	476	41.4	526	45.7	576	49.9
327	28.8	377	33.0	427	37.3	477	41.5	527	45.8	577	50.0
328	28.9	378	33.1	428	37.4	478	41.6	528	45.8	578	50.1
329	28.9	379	33.2	429	37.4	479	41.7	529	45.9	579	50.2
330	29.0	380	33.3	430	37.5	480	41.8	530	46.0	580	50.3
331	29.1	381	33.4	431	37.6	481	41.9	531	46.1	581	50.3
332	29.2	382	33.4	432	37.7	482	41.9	532	46.2	582	50.4
333	29.3	383	33.5	433	37.8	483	42.0	533	46.3	583	50.5
334	29.4	384	33.6	434	37.9	484	42.1	534	46.4	584	50.6
335	29.5	385	33.7	435	37.9	485	42.2	535	46.4	585	50.7
336	29.5	386	33.8	436	38.0	486	42.3	536	46.5	586	50.8
337	29.6	387	33.9	437	38.1	487	42.4	537	46.6	587	50.9
338	29.7	388	34.0	438	38.2	488	42.4	538	46.7	588	50.9
339	29.8	389	34.0	439	38.3	489	42.5	539	46.8	589	51.0
340	29.9	390	34.1	440	38.4	490	42.6	540	46.9	590	51.1
341	30.0	391	34.2	441	38.5	491	42.7	541	46.9	591	51.2
342	30.0	392	34.3	442	38.5	492	42.8	542	47.0	592	51.3
343	30.1	393	34.4	443	38.6	493	42.9	543	47.1	593	51.4
344	30.2	394	34.5	444	38.7	494	43.0	544	47.2	594	51.4
345	30.3	395	34.5	445	38.8	495	43.0	545	47.3	595	51.5
346	30.4	396	34.6	446	38.9	496	43.1	546	47.4	596	51.6
347	30.5	397	34.7	447	39.0	497	43.2	547	47.5	597	51.7
348	30.6	398	34.8	448	39.0	498	43.3	548	47.5	598	51.8
349	30.6	399	34.9	449	39.1	499	43.4	549	47.6	599	51.9
350	30.7	400	35.0	450	39.2	500	43.5	550	47.7	600	52.0

Loan Period: 21 Days Availability: 95% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	6.7	101	12.3	151	18.0	201	23.6	251	29.2
2	1.2	52	6.8	102	12.5	152	18.1	202	23.7	252	29.3
3	1.3	53	7.0	103	12.6	153	18.2	203	23.8	253	29.4
4	1.4	54	7.1	104	12.7	154	18.3	204	23.9	254	29.5
5	1.6	55	7.2	105	12.8	155	18.4	205	24.0	255	29.6
6	1.7	56	7.3	106	12.9	156	18.5	206	24.1	256	29.8
7	1.8	57	7.4	107	13.0	157	18.6	207	24.3	257	29.9
8	1.9	58	7.5	108	13.1	158	18.7	208	24.4	258	30.0
9	2.0	59	7.6	109	13.2	159	18.9	209	24.5	259	30.1
10	2.1	60	7.7	110	13.4	160	19.0	210	24.6	260	30.2
11	2.2	61	7.9	111	13.5	161	19.1	211	24.7	261	30.3
12	2.3	62	8.0	112	13.6	162	19.2	212	24.8	262	30.4
13	2.5	63	8.1	113	13.7	163	19.3	213	24.9	263	30.5
14	2.6	64	8.2	114	13.8	164	19.4	214	25.0	264	30.7
15	2.7	65	8.3	115	13.9	165	19.5	215	25.2	265	30.8
16	2.8	66	8.4	116	14.0	166	19.6	216	25.3	266	30.9
17	2.9	67	8.5	117	14.1	167	19.8	217	25.4	267	31.0
18	3.0	68	8.6	118	14.3	168	19.9	218	25.5	268	31.1
19	3.1	69	8.8	119	14.4	169	20.0	219	25.6	269	31.2
20	3.2	70	8.9	120	14.5	170	20.1	220	25.7	270	31.3
21	3.4	71	9.0	121	14.6	171	20.2	221	25.8	271	31.4
22	3.5	72	9.1	122	14.7	172	20.3	222	25.9	272	31.6
23	3.6	73	9.2	123	14.8	173	20.4	223	26.0	273	31.7
24	3.7	74	9.3	124	14.9	174	20.5	224	26.2	274	31.8
25	3.8	75	9.4	125	15.0	175	20.7	225	26.3	275	31.9
26	3.9	76	9.5	126	15.2	176	20.8	226	26.4	276	32.0
27	4.0	77	9.6	127	15.3	177	20.9	227	26.5	277	32.1
28	4.1	78	9.8	128	15.4	178	21.0	228	26.6	278	32.2
29	4.3	79	9.9	129	15.5	179	21.1	229	26.7	279	32.3
30	4.4	80	10.0	130	15.6	180	21.2	230	26.8	280	32.5
31	4.5	81	10.1	131	15.7	181	21.3	231	26.9	281	32.6
32	4.6	82	10.2	132	15.8	182	21.4	232	27.1	282	32.7
33	4.7	83	10.3	133	15.9	183	21.6	233	27.2	283	32.8
34	4.8	84	10.4	134	16.1	184	21.7	234	27.3	284	32.9
35	4.9	85	10.5	135	16.2	185	21.8	235	27.4	285	33.0
36	5.0	86	10.7	136	16.3	186	21.9	236	27.5	286	33.1
37	5.2	87	10.8	137	16.4	187	22.0	237	27.6	287	33.2
38	5.3	88	10.9	138	16.5	188	22.1	238	27.7	288	33.4
39	5.4	89	11.0	139	16.6	189	22.2	239	27.8	289	33.5
40	5.5	90	11.1	140	16.7	190	22.3	240	28.0	290	33.6
41	5.6	91	11.2	141	16.8	191	22.5	241	28.1	291	33.7
42	5.7	92	11.3	142	17.0	192	22.6	242	28.2	292	33.8
43	5.8	93	11.4	143	17.1	193	22.7	243	28.3	293	33.9
44	5.9	94	11.6	144	17.2	194	22.8	244	28.4	294	34.0
45	6.1	95	11.7	145	17.3	195	22.9	245	28.5	295	34.1
46	6.2	96	11.8	146	17.4	196	23.0	246	28.6	296	34.2
47	6.3	97	11.9	147	17.5	197	23.1	247	28.7	297	34.4
48	6.4	98	12.0	148	17.6	198	23.2	248	28.9	298	34.5
49	6.5	99	12.1	149	17.7	199	23.4	249	29.0	299	34.6
50	6.6	100	12.2	150	17.8	200	23.5	250	29.1	300	34.7

Loan Period: 21 Days Availability: 95% Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	34.8	351	40.4	401	46.0	451	51.7	501	57.3	551	62.9
302	34.9	352	40.5	402	46.2	452	51.8	502	57.4	552	63.0
303	35.0	353	40.7	403	46.3	453	51.9	503	57.5	553	63.1
304	35.1	354	40.8	404	46.4	454	52.0	504	57.6	554	63.2
305	35.3	355	40.9	405	46.5	455	52.1	505	57.7	555	63.3
306	35.4	356	41.0	406	46.6	456	52.2	506	57.8	556	63.5
307	35.5	357	41.1	407	46.7	457	52.3	507	58.0	557	63.6
308	35.6	358	41.2	408	46.8	458	52.4	508	58.1	558	63.7
309	35.7	359	41.3	409	46.9	459	52.6	509	58.2	559	63.8
310	35.8	360	41.4	410	47.1	460	52.7	510	58.3	560	63.9
311	35.9	361	41.6	411	47.2	461	52.8	511	58.4	561	64.0
312	36.0	362	41.7	412	47.3	462	52.9	512	58.5	562	64.1
313	36.2	363	41.8	413	47.4	463	53.0	513	58.6	563	64.2
314	36.3	364	41.9	414	47.5	464	53.1	514	58.7	564	64.4
315	36.4	365	42.0	415	47.6	465	53.2	515	58.8	565	64.5
316	36.5	366	42.1	416	47.7	466	53.3	516	59.0	566	64.6
317	36.6	367	42.2	417	47.8	467	53.5	517	59.1	567	64.7
318	36.7	368	42.3	418	48.0	468	53.6	518	59.2	568	64.8
319	36.8	369	42.4	419	48.1	469	53.7	519	59.3	569	64.9
320	36.9	370	42.6	420	48.2	470	53.8	520	59.4	570	65.0
321	37.1	371	42.7	421	48.3	471	53.9	521	59.5	571	65.1
322	37.2	372	42.8	422	48.4	472	54.0	522	59.6	572	65.3
323	37.3	373	42.9	423	48.5	473	54.1	523	59.7	573	65.4
324	37.4	374	43.0	424	48.6	474	54.2	524	59.9	574	65.5
325	37.5	375	43.1	425	48.7	475	54.4	525	60.0	575	65.6
326	37.6	376	43.2	426	48.9	476	54.5	526	60.1	576	65.7
327	37.7	377	43.3	427	49.0	477	54.6	527	60.2	577	65.8
328	37.8	378	43.5	428	49.1	478	54.7	528	60.3	578	65.9
329	38.0	379	43.6	429	49.2	479	54.8	529	60.4	579	66.0
330	38.1	380	43.7	430	49.3	480	54.9	530	60.5	580	66.2
331	38.2	381	43.8	431	49.4	481	55.0	531	60.6	581	66.3
332	38.3	382	43.9	432	49.5	482	55.1	532	60.8	582	66.4
333	38.4	383	44.0	433	49.6	483	55.3	533	60.9	583	66.5
334	38.5	384	44.1	434	49.8	484	55.4	534	61.0	584	66.6
335	38.6	385	44.2	435	49.9	485	55.5	535	61.1	585	66.7
336	38.7	386	44.4	436	50.0	486	55.6	536	61.2	586	66.8
337	38.9	387	44.5	437	50.1	487	55.7	537	61.3	587	66.9
338	39.0	388	44.6	438	50.2	488	55.8	538	61.4	588	67.0
339	39.1	389	44.7	439	50.3	489	55.9	539	61.5	589	67.2
340	39.2	390	44.8	440	50.4	490	56.0	540	61.7	590	67.3
341	39.3	391	44.9	441	50.5	491	56.2	541	61.8	591	67.4
342	39.4	392	45.0	442	50.6	492	56.3	542	61.9	592	67.5
343	39.5	393	45.1	443	50.8	493	56.4	543	62.0	593	67.6
344	39.6	394	45.3	444	50.9	494	56.5	544	62.1	594	67.7
345	39.8	395	45.4	445	51.0	495	56.6	545	62.2	595	67.8
346	39.9	396	45.5	446	51.1	496	56.7	546	62.3	596	67.9
347	40.0	397	45.6	447	51.2	497	56.8	547	62.4	597	68.1
348	40.1	398	45.7	448	51.3	498	56.9	548	62.6	598	68.2
349	40.2	399	45.8	449	51.4	499	57.1	549	62.7	599	68.3
350	40.3	400	45.9	450	51.5	500	57.2	550	62.8	600	68.4

Loan Period: 28 Days Availability: 50% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	4.9	101	8.7	151	12.6	201	16.4	251	20.3
2	1.2	52	5.0	102	8.8	152	12.7	202	16.5	252	20.3
3	1.2	53	5.1	103	8.9	153	12.7	203	16.6	253	20.4
4	1.3	54	5.1	104	9.0	154	12.8	204	16.6	254	20.5
5	1.4	55	5.2	105	9.1	155	12.9	205	16.7	255	20.6
6	1.5	56	5.3	106	9.1	156	13.0	206	16.8	256	20.6
7	1.5	57	5.4	107	9.2	157	13.0	207	16.9	257	20.7
8	1.6	58	5.4	108	9.3	158	13.1	208	17.0	258	20.8
9	1.7	59	5.5	109	9.4	159	13.2	209	17.0	259	20.9
10	1.8	60	5.6	110	9.4	160	13.3	210	17.1	260	20.9
11	1.8	61	5.7	111	9.5	161	13.4	211	17.2	261	21.0
12	1.9	62	5.8	112	9.6	162	13.4	212	17.3	262	21.1
13	2.0	63	5.8	113	9.7	163	13.5	213	17.3	263	21.2
14	2.1	64	5.9	114	9.7	164	13.6	214	17.4	264	21.3
15	2.2	65	6.0	115	9.8	165	13.7	215	17.5	265	21.3
16	2.2	66	6.1	116	9.9	166	13.7	216	17.6	266	21.4
17	2.3	67	6.1	117	10.0	167	13.8	217	17.6	267	21.5
18	2.4	68	6.2	118	10.1	168	13.9	218	17.7	268	21.6
19	2.5	69	6.3	119	10.1	169	14.0	219	17.8	269	21.6
20	2.5	70	6.4	120	10.2	170	14.0	220	17.9	270	21.7
21	2.6	71	6.4	121	10.3	171	14.1	221	18.0	271	21.8
22	2.7	72	6.5	122	10.4	172	14.2	222	18.0	272	21.9
23	2.8	73	6.6	123	10.4	173	14.3	223	18.1	273	21.9
24	2.8	74	6.7	124	10.5	174	14.3	224	18.2	274	22.0
25	2.9	75	6.8	125	10.6	175	14.4	225	18.3	275	22.1
26	3.0	76	6.8	126	10.7	176	14.5	226	18.3	276	22.2
27	3.1	77	6.9	127	10.7	177	14.6	227	18.4	277	22.2
28	3.1	78	7.0	128	10.8	178	14.7	228	18.5	278	22.3
29	3.2	79	7.1	129	10.9	179	14.7	229	18.6	279	22.4
30	3.3	80	7.1	130	11.0	180	14.8	230	18.6	280	22.5
31	3.4	81	7.2	131	11.0	181	14.9	231	18.7	281	22.6
32	3.5	82	7.3	132	11.1	182	15.0	232	18.8	282	22.6
33	3.5	83	7.4	133	11.2	183	15.0	233	18.9	283	22.7
34	3.6	84	7.4	134	11.3	184	15.1	234	19.0	284	22.8
35	3.7	85	7.5	135	11.4	185	15.2	235	19.0	285	22.9
36	3.8	86	7.6	136	11.4	186	15.3	236	19.1	286	22.9
37	3.8	87	7.7	137	11.5	187	15.3	237	19.2	287	23.0
38	3.9	88	7.8	138	11.6	188	15.4	238	19.3	288	23.1
39	4.0	89	7.8	139	11.7	189	15.5	239	19.3	289	23.2
40	4.1	90	7.9	140	11.7	190	15.6	240	19.4	290	23.2
41	4.1	91	8.0	141	11.8	191	15.7	241	19.5	291	23.3
42	4.2	92	8.1	142	11.9	192	15.7	242	19.6	292	23.4
43	4.3	93	8.1	143	12.0	193	15.8	243	19.6	293	23.5
44	4.4	94	8.2	144	12.0	194	15.9	244	19.7	294	23.6
45	4.5	95	8.3	145	12.1	195	16.0	245	19.8	295	23.6
46	4.5	96	8.4	146	12.2	196	16.0	246	19.9	296	23.7
47	4.6	97	8.4	147	12.3	197	16.1	247	19.9	297	23.8
48	4.7	98	8.5	148	12.4	198	16.2	248	20.0	298	23.9
49	4.8	99	8.6	149	12.4	199	16.3	249	20.1	299	23.9
50	4.8	100	8.7	150	12.5	200	16.3	250	20.2	300	24.0

Loan Period: 28 Days Availability: 50% Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	24.1	351	27.9	401	31.8	451	35.6	501	39.4	551	43.3
302	24.2	352	28.0	402	31.8	452	35.7	502	39.5	552	43.3
303	24.2	353	28.1	403	31.9	453	35.8	503	39.6	553	43.4
304	24.3	354	28.2	404	32.0	454	35.8	504	39.7	554	43.5
305	24.4	355	28.2	405	32.1	455	35.9	505	39.7	555	43.6
306	24.5	356	28.3	406	32.1	456	36.0	506	39.8	556	43.7
307	24.6	357	28.4	407	32.2	457	36.1	507	39.9	557	43.7
308	24.6	358	28.5	408	32.3	458	36.1	508	40.0	558	43.8
309	24.7	359	28.5	409	32.4	459	36.2	509	40.0	559	43.9
310	24.8	360	28.6	410	32.5	460	36.3	510	40.1	560	44.0
311	24.9	361	28.7	411	32.5	461	36.4	511	40.2	561	44.0
312	24.9	362	28.8	412	32.6	462	36.4	512	40.3	562	44.1
313	25.0	363	28.8	413	32.7	463	36.5	513	40.4	563	44.2
314	25.1	364	28.9	414	32.8	464	36.6	514	40.4	564	44.3
315	25.2	365	29.0	415	32.8	465	36.7	515	40.5	565	44.3
316	25.2	366	29.1	416	32.9	466	36.7	516	40.6	566	44.4
317	25.3	367	29.2	417	33.0	467	36.8	517	40.7	567	44.5
318	25.4	368	29.2	418	33.1	468	36.9	518	40.7	568	44.6
319	25.5	369	29.3	419	33.1	469	37.0	519	40.8	569	44.6
320	25.5	370	29.4	420	33.2	470	37.1	520	40.9	570	44.7
321	25.6	371	29.5	421	33.3	471	37.1	521	41.0	571	44.8
322	25.7	372	29.5	422	33.4	472	37.2	522	41.0	572	44.9
323	25.8	373	29.6	423	33.4	473	37.3	523	41.1	573	45.0
324	25.9	374	29.7	424	33.5	474	37.4	524	41.2	574	45.0
325	25.9	375	29.8	425	33.6	475	37.4	525	41.3	575	45.1
326	26.0	376	29.8	426	33.7	476	37.5	526	41.4	576	45.2
327	26.1	377	29.9	427	33.8	477	37.6	527	41.4	577	45.3
328	26.2	378	30.0	428	33.8	478	37.7	528	41.5	578	45.3
329	26.2	379	30.1	429	33.9	479	37.7	529	41.6	579	45.4
330	26.3	380	30.2	430	34.0	480	37.8	530	41.7	580	45.5
331	26.4	381	30.2	431	34.1	481	37.9	531	41.7	581	45.6
332	26.5	382	30.3	432	34.1	482	38.0	532	41.8	582	45.6
333	26.5	383	30.4	433	34.2	483	38.1	533	41.9	583	45.7
334	26.6	384	30.5	434	34.3	484	38.1	534	42.0	584	45.8
335	26.7	385	30.5	435	34.4	485	38.2	535	42.0	585	45.9
336	26.8	386	30.6	436	34.4	486	38.3	536	42.1	586	46.0
337	26.9	387	30.7	437	34.5	487	38.4	537	42.2	587	46.0
338	26.9	388	30.8	438	34.6	488	38.4	538	42.3	588	46.1
339	27.0	389	30.8	439	34.7	489	38.5	539	42.3	589	46.2
340	27.1	390	30.9	440	34.8	490	38.6	540	42.4	590	46.3
341	27.2	391	31.0	441	34.8	491	38.7	541	42.5	591	46.3
342	27.2	392	31.1	442	34.9	492	38.7	542	42.6	592	46.4
343	27.3	393	31.1	443	35.0	493	38.8	543	42.7	593	46.5
344	27.4	394	31.2	444	35.1	494	38.9	544	42.7	594	46.6
345	27.5	395	31.3	445	35.1	495	39.0	545	42.8	595	46.6
346	27.5	396	31.4	446	35.2	496	39.0	546	42.9	596	46.7
347	27.6	397	31.5	447	35.3	497	39.1	547	43.0	597	46.8
348	27.7	398	31.5	448	35.4	498	39.2	548	43.0	598	46.9
349	27.8	399	31.6	449	35.4	499	39.3	549	43.1	599	47.0
350	27.8	400	31.7	450	35.5	500	39.4	550	43.2	600	47.0

Loan Period: 28 Days Availability: 68% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	6.3	101	11.5	151	16.7	201	21.9	251	27.1
2	1.2	52	6.4	102	11.6	152	16.8	202	22.0	252	27.2
3	1.3	53	6.5	103	11.7	153	16.9	203	22.1	253	27.3
4	1.4	54	6.6	104	11.8	154	17.0	204	22.2	254	27.4
5	1.5	55	6.7	105	11.9	155	17.1	205	22.3	255	27.5
6	1.6	56	6.8	106	12.0	156	17.2	206	22.4	256	27.7
7	1.7	57	6.9	107	12.1	157	17.3	207	22.6	257	27.8
8	1.8	58	7.0	108	12.2	158	17.4	208	22.7	258	27.9
9	1.9	59	7.1	109	12.3	159	17.6	209	22.8	259	28.0
10	2.0	60	7.2	110	12.5	160	17.7	210	22.9	260	28.1
11	2.1	61	7.4	111	12.6	161	17.8	211	23.0	261	28.2
12	2.2	62	7.5	112	12.7	162	17.9	212	23.1	262	28.3
13	2.4	63	7.6	113	12.8	163	18.0	213	23.2	263	28.4
14	2.5	64	7.7	114	12.9	164	18.1	214	23.3	264	28.5
15	2.6	65	7.8	115	13.0	165	18.2	215	23.4	265	28.6
16	2.7	66	7.9	116	13.1	166	18.3	216	23.5	266	28.7
17	2.8	67	8.0	117	13.2	167	18.4	217	23.6	267	28.8
18	2.9	68	8.1	118	13.3	168	18.5	218	23.7	268	28.9
19	3.0	69	8.2	119	13.4	169	18.6	219	23.8	269	29.0
20	3.1	70	8.3	120	13.5	170	18.7	220	23.9	270	29.1
21	3.2	71	8.4	121	13.6	171	18.8	221	24.0	271	29.2
22	3.3	72	8.5	122	13.7	172	18.9	222	24.1	272	29.3
23	3.4	73	8.6	123	13.8	173	19.0	223	24.2	273	29.4
24	3.5	74	8.7	124	13.9	174	19.1	224	24.3	274	29.5
25	3.6	75	8.8	125	14.0	175	19.2	225	24.4	275	29.6
26	3.7	76	8.9	126	14.1	176	19.3	226	24.5	276	29.7
27	3.8	77	9.0	127	14.2	177	19.4	227	24.6	277	29.8
28	3.9	78	9.1	128	14.3	178	19.5	228	24.7	278	29.9
29	4.0	79	9.2	129	14.4	179	19.6	229	24.8	279	30.0
30	4.1	80	9.3	130	14.5	180	19.7	230	24.9	280	30.2
31	4.2	81	9.4	131	14.6	181	19.8	231	25.0	281	30.3
32	4.3	82	9.5	132	14.7	182	19.9	232	25.2	282	30.4
33	4.4	83	9.6	133	14.8	183	20.1	233	25.3	283	30.5
34	4.5	84	9.7	134	15.0	184	20.2	234	25.4	284	30.6
35	4.6	85	9.8	135	15.1	185	20.3	235	25.5	285	30.7
36	4.7	86	10.0	136	15.2	186	20.4	236	25.6	286	30.8
37	4.9	87	10.1	137	15.3	187	20.5	237	25.7	287	30.9
38	5.0	88	10.2	138	15.4	188	20.6	238	25.8	288	31.0
39	5.1	89	10.3	139	15.5	189	20.7	239	25.9	289	31.1
40	5.2	90	10.4	140	15.6	190	20.8	240	26.0	290	31.2
41	5.3	91	10.5	141	15.7	191	20.9	241	26.1	291	31.3
42	5.4	92	10.6	142	15.8	192	21.0	242	26.2	292	31.4
43	5.5	93	10.7	143	15.9	193	21.1	243	26.3	293	31.5
44	5.6	94	10.8	144	16.0	194	21.2	244	26.4	294	31.6
45	5.7	95	10.9	145	16.1	195	21.3	245	26.5	295	31.7
46	5.8	96	11.0	146	16.2	196	21.4	246	26.6	296	31.8
47	5.9	97	11.1	147	16.3	197	21.5	247	26.7	297	31.9
48	6.0	98	11.2	148	16.4	198	21.6	248	26.8	298	32.0
49	6.1	99	11.3	149	16.5	199	21.7	249	26.9	299	32.1
50	6.2	100	11.4	150	16.6	200	21.8	250	27.0	300	32.2

Loan Period: 28 Days Availability: 68% Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	32.3	351	37.5	401	42.7	451	48.0	501	53.2	551	58.4
302	32.4	352	37.6	402	42.9	452	48.1	502	53.3	552	58.5
303	32.5	353	37.8	403	43.0	453	48.2	503	53.4	553	58.6
304	32.6	354	37.9	404	43.1	454	48.3	504	53.5	554	58.7
305	32.8	355	38.0	405	43.2	455	48.4	505	53.6	555	58.8
306	32.9	356	38.1	406	43.3	456	48.5	506	53.7	556	58.9
307	33.0	357	38.2	407	43.4	457	48.6	507	53.8	557	59.0
308	33.1	358	38.3	408	43.5	458	48.7	508	53.9	558	59.1
309	33.2	359	38.4	409	43.6	459	48.8	509	54.0	559	59.2
310	33.3	360	38.5	410	43.7	460	48.9	510	54.1	560	59.3
311	33.4	361	38.6	411	43.8	461	49.0	511	54.2	561	59.4
312	33.5	362	38.7	412	43.9	462	49.1	512	54.3	562	59.5
313	33.6	363	38.8	413	44.0	463	49.2	513	54.4	563	59.6
314	33.7	364	38.9	414	44.1	464	49.3	514	54.5	564	59.7
315	33.8	365	39.0	415	44.2	465	49.4	515	54.6	565	59.8
316	33.9	366	39.1	416	44.3	466	49.5	516	54.7	566	59.9
317	34.0	367	39.2	417	44.4	467	49.6	517	54.8	567	60.0
318	34.1	368	39.3	418	44.5	468	49.7	518	54.9	568	60.1
319	34.2	369	39.4	419	44.6	469	49.8	519	55.0	569	60.2
320	34.3	370	39.5	420	44.7	470	49.9	520	55.1	570	60.3
321	34.4	371	39.6	421	44.8	471	50.0	521	55.2	571	60.4
322	34.5	372	39.7	422	44.9	472	50.1	522	55.3	572	60.6
323	34.6	373	39.8	423	45.0	473	50.2	523	55.4	573	60.7
324	34.7	374	39.9	424	45.1	474	50.3	524	55.6	574	60.8
325	34.8	375	40.0	425	45.2	475	50.5	525	55.7	575	60.9
326	34.9	376	40.1	426	45.4	476	50.6	526	55.8	576	61.0
327	35.0	377	40.2	427	45.5	477	50.7	527	55.9	577	61.1
328	35.1	378	40.4	428	45.6	478	50.8	528	56.0	578	61.2
329	35.3	379	40.5	429	45.7	479	50.9	529	56.1	579	61.3
330	35.4	380	40.6	430	45.8	480	51.0	530	56.2	580	61.4
331	35.5	381	40.7	431	45.9	481	51.1	531	56.3	581	61.5
332	35.6	382	40.8	432	46.0	482	51.2	532	56.4	582	61.6
333	35.7	383	40.9	433	46.1	483	51.3	533	56.5	583	61.7
334	35.8	384	41.0	434	46.2	484	51.4	534	56.6	584	61.8
335	35.9	385	41.1	435	46.3	485	51.5	535	56.7	585	61.9
336	36.0	386	41.2	436	46.4	486	51.6	536	56.8	586	62.0
337	36.1	387	41.3	437	46.5	487	51.7	537	56.9	587	62.1
338	36.2	388	41.4	438	46.6	488	51.8	538	57.0	588	62.2
339	36.3	389	41.5	439	46.7	489	51.9	539	57.1	589	62.3
340	36.4	390	41.6	440	46.8	490	52.0	540	57.2	590	62.4
341	36.5	391	41.7	441	46.9	491	52.1	541	57.3	591	62.5
342	36.6	392	41.8	442	47.0	492	52.2	542	57.4	592	62.6
343	36.7	393	41.9	443	47.1	493	52.3	543	57.5	593	62.7
344	36.8	394	42.0	444	47.2	494	52.4	544	57.6	594	62.8
345	36.9	395	42.1	445	47.3	495	52.5	545	57.7	595	62.9
346	37.0	396	42.2	446	47.4	496	52.6	546	57.8	596	63.0
347	37.1	397	42.3	447	47.5	497	52.7	547	57.9	597	63.2
348	37.2	398	42.4	448	47.6	498	52.8	548	58.1	598	63.3
349	37.3	399	42.5	449	47.7	499	53.0	549	58.2	599	63.4
350	37.4	400	42.6	450	47.8	500	53.1	550	58.3	600	63.5

Loan Period: 28 Days Availability: 95% Circulations: 1 - 300

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
1	1.1	51	7.7	101	14.3	151	20.9	201	27.4	251	34.0
2	1.3	52	7.8	102	14.4	152	21.0	202	27.6	252	34.1
3	1.4	53	8.0	103	14.5	153	21.1	203	27.7	253	34.3
4	1.5	54	8.1	104	14.7	154	21.3	204	27.8	254	34.4
5	1.7	55	8.2	105	14.8	155	21.4	205	28.0	255	34.5
6	1.8	56	8.4	106	14.9	156	21.5	206	28.1	256	34.7
7	1.9	57	8.5	107	15.1	157	21.6	207	28.2	257	34.8
8	2.1	58	8.6	108	15.2	158	21.8	208	28.4	258	34.9
9	2.2	59	8.8	109	15.3	159	21.9	209	28.5	259	35.1
10	2.3	60	8.9	110	15.5	160	22.0	210	28.6	260	35.2
11	2.4	61	9.0	111	15.6	161	22.2	211	28.7	261	35.3
12	2.6	62	9.2	112	15.7	162	22.3	212	28.9	262	35.5
13	2.7	63	9.3	113	15.9	163	22.4	213	29.0	263	35.6
14	2.8	64	9.4	114	16.0	164	22.6	214	29.1	264	35.7
15	3.0	65	9.5	115	16.1	165	22.7	215	29.3	265	35.8
16	3.1	66	9.7	116	16.3	166	22.8	216	29.4	266	36.0
17	3.2	67	9.8	117	16.4	167	23.0	217	29.5	267	36.1
18	3.4	68	9.9	118	16.5	168	23.1	218	29.7	268	36.2
19	3.5	69	10.1	119	16.6	169	23.2	219	29.8	269	36.4
20	3.6	70	10.2	120	16.8	170	23.4	220	29.9	270	36.5
21	3.8	71	10.3	121	16.9	171	23.5	221	30.1	271	36.6
22	3.9	72	10.5	122	17.0	172	23.6	222	30.2	272	36.8
23	4.0	73	10.6	123	17.2	173	23.8	223	30.3	273	36.9
24	4.2	74	10.7	124	17.3	174	23.9	224	30.5	274	37.0
25	4.3	75	10.9	125	17.4	175	24.0	225	30.6	275	37.2
26	4.4	76	11.0	126	17.6	176	24.1	226	30.7	276	37.3
27	4.6	77	11.1	127	17.7	177	24.3	227	30.9	277	37.4
28	4.7	78	11.3	128	17.8	178	24.4	228	31.0	278	37.6
29	4.8	79	11.4	129	18.0	179	24.5	229	31.1	279	37.7
30	4.9	80	11.5	130	18.1	180	24.7	230	31.2	280	37.8
31	5.1	81	11.7	131	18.2	181	24.8	231	31.4	281	38.0
32	5.2	82	11.8	132	18.4	182	24.9	232	31.5	282	38.1
33	5.3	83	11.9	133	18.5	183	25.1	233	31.6	283	38.2
34	5.5	84	12.0	134	18.6	184	25.2	234	31.8	284	38.3
35	5.6	85	12.2	135	18.8	185	25.3	235	31.9	285	38.5
36	5.7	86	12.3	136	18.9	186	25.5	236	32.0	286	38.6
37	5.9	87	12.4	137	19.0	187	25.6	237	32.2	287	38.7
38	6.0	88	12.6	138	19.1	188	25.7	238	32.3	288	38.9
39	6.1	89	12.7	139	19.3	189	25.9	239	32.4	289	39.0
40	6.3	90	12.8	140	19.4	190	26.0	240	32.6	290	39.1
41	6.4	91	13.0	141	19.5	191	26.1	241	32.7	291	39.3
42	6.5	92	13.1	142	19.7	192	26.2	242	32.8	292	39.4
43	6.7	93	13.2	143	19.8	193	26.4	243	33.0	293	39.5
44	6.8	94	13.4	144	19.9	194	26.5	244	33.1	294	39.7
45	6.9	95	13.5	145	20.1	195	26.6	245	33.2	295	39.8
46	7.0	96	13.6	146	20.2	196	26.8	246	33.4	296	39.9
47	7.2	97	13.8	147	20.3	197	26.9	247	33.5	297	40.1
48	7.3	98	13.9	148	20.5	198	27.0	248	33.6	298	40.2
49	7.4	99	14.0	149	20.6	199	27.2	249	33.7	299	40.3
50	7.6	100	14.2	150	20.7	200	27.3	250	33.9	300	40.5

Loan Period: 28 Days Availability: 95% Circulations: 301 - 600

Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies	Circ	Copies
301	40.6	351	47.2	401	53.7	451	60.3	501	66.9	551	73.5
302	40.7	352	47.3	402	53.9	452	60.4	502	67.0	552	73.6
303	40.8	353	47.4	403	54.0	453	60.6	503	67.1	553	73.7
304	41.0	354	47.6	404	54.1	454	60.7	504	67.3	554	73.9
305	41.1	355	47.7	405	54.3	455	60.8	505	67.4	555	74.0
306	41.2	356	47.8	406	54.4	456	61.0	506	67.5	556	74.1
307	41.4	357	47.9	407	54.5	457	61.1	507	67.7	557	74.2
308	41.5	358	48.1	408	54.7	458	61.2	508	67.8	558	74.4
309	41.6	359	48.2	409	54.8	459	61.4	509	67.9	559	74.5
310	41.8	360	48.3	410	54.9	460	61.5	510	68.1	560	74.6
311	41.9	361	48.5	411	55.0	461	61.6	511	68.2	561	74.8
312	42.0	362	48.6	412	55.2	462	61.8	512	68.3	562	74.9
313	42.2	363	48.7	413	55.3	463	61.9	513	68.5	563	75.0
314	42.3	364	48.9	414	55.4	464	62.0	514	68.6	564	75.2
315	42.4	365	49.0	415	55.6	465	62.2	515	68.7	565	75.3
316	42.6	366	49.1	416	55.7	466	62.3	516	68.9	566	75.4
317	42.7	367	49.3	417	55.8	467	62.4	517	69.0	567	75.6
318	42.8	368	49.4	418	56.0	468	62.5	518	69.1	568	75.7
319	43.0	369	49.5	419	56.1	469	62.7	519	69.3	569	75.8
320	43.1	370	49.7	420	56.2	470	62.8	520	69.4	570	76.0
321	43.2	371	49.8	421	56.4	471	62.9	521	69.5	571	76.1
322	43.3	372	49.9	422	56.5	472	63.1	522	69.6	572	76.2
323	43.5	373	50.1	423	56.6	473	63.2	523	69.8	573	76.4
324	43.6	374	50.2	424	56.8	474	63.3	524	69.9	574	76.5
325	43.7	375	50.3	425	56.9	475	63.5	525	70.0	575	76.6
326	43.9	376	50.4	426	57.0	476	63.6	526	70.2	576	76.7
327	44.0	377	50.6	427	57.2	477	63.7	527	70.3	577	76.9
328	44.1	378	50.7	428	57.3	478	63.9	528	70.4	578	77.0
329	44.3	379	50.8	429	57.4	479	64.0	529	70.6	579	77.1
330	44.4	380	51.0	430	57.5	480	64.1	530	70.7	580	77.3
331	44.5	381	51.1	431	57.7	481	64.3	531	70.8	581	77.4
332	44.7	382	51.2	432	57.8	482	64.4	532	71.0	582	77.5
333	44.8	383	51.4	433	57.9	483	64.5	533	71.1	583	77.7
334	44.9	384	51.5	434	58.1	484	64.6	534	71.2	584	77.8
335	45.1	385	51.6	435	58.2	485	64.8	535	71.4	585	77.9
336	45.2	386	51.8	436	58.3	486	64.9	536	71.5	586	78.1
337	45.3	387	51.9	437	58.5	487	65.0	537	71.6	587	78.2
338	45.4	388	52.0	438	58.6	488	65.2	538	71.8	588	78.3
339	45.6	389	52.2	439	58.7	489	65.3	539	71.9	589	78.5
340	45.7	390	52.3	440	58.9	490	65.4	540	72.0	590	78.6
341	45.8	391	52.4	441	59.0	491	65.6	541	72.1	591	78.7
342	46.0	392	52.6	442	59.1	492	65.7	542	72.3	592	78.9
343	46.1	393	52.7	443	59.3	493	65.8	543	72.4	593	79.0
344	46.2	394	52.8	444	59.4	494	66.0	544	72.5	594	79.1
345	46.4	395	52.9	445	59.5	495	66.1	545	72.7	595	79.2
346	46.5	396	53.1	446	59.7	496	66.2	546	72.8	596	79.4
347	46.6	397	53.2	447	59.8	497	66.4	547	72.9	597	79.5
348	46.8	398	53.3	448	59.9	498	66.5	548	73.1	598	79.6
349	46.9	399	53.5	449	60.0	499	66.6	549	73.2	599	79.8
350	47.0	400	53.6	450	60.2	500	66.8	550	73.3	600	79.9

Appendix

1. The Expectation of Life formula

For a stable population,

$$\text{Average Life Expectancy} = \frac{\text{Population Size}}{\text{Entrants Per Time Unit}}$$

$$\text{Entrants Per Time Unit} = \frac{\text{Population Size}}{\text{Average Life Expectancy}}$$

$$\text{Population Size} = \text{Average Life Expectancy} \times \text{Entrants Per Time Unit}$$

For the insurance industry,

$$\text{Average Life Expectancy} = \frac{\text{Population Size}}{\text{Annual births}}$$

$$\text{Annual Births \& Deaths} = \frac{\text{Population Size}}{\text{Average Life Expectancy}}$$

$$\text{Population Size} = \text{Average Life Expectancy} \times \text{Annual Births}$$

For library applications, the terms in the equations might refer to:

Average Life Expectancy	<i>Average:</i>	length of loan discard age
Entrants Per Time Unit	<i>Average number of items per time unit:</i>	acquired loaned returned put on display discarded
Population size	<i>Average number of items:</i>	owned on loan on display waiting to be reshelved

Some Library Examples:

$$\text{Average length of loan} = \frac{\text{Average number of items on loan}}{\text{Average number of items loaned per time unit}}$$

$$\text{Average number of items loaned per time unit} = \frac{\text{Average number of items on loan}}{\text{Average length of loan}}$$

$$\text{Average number of items on loan} = \text{Average length of loan} \times \text{Average number of items loaned per time unit}$$

Library Applications

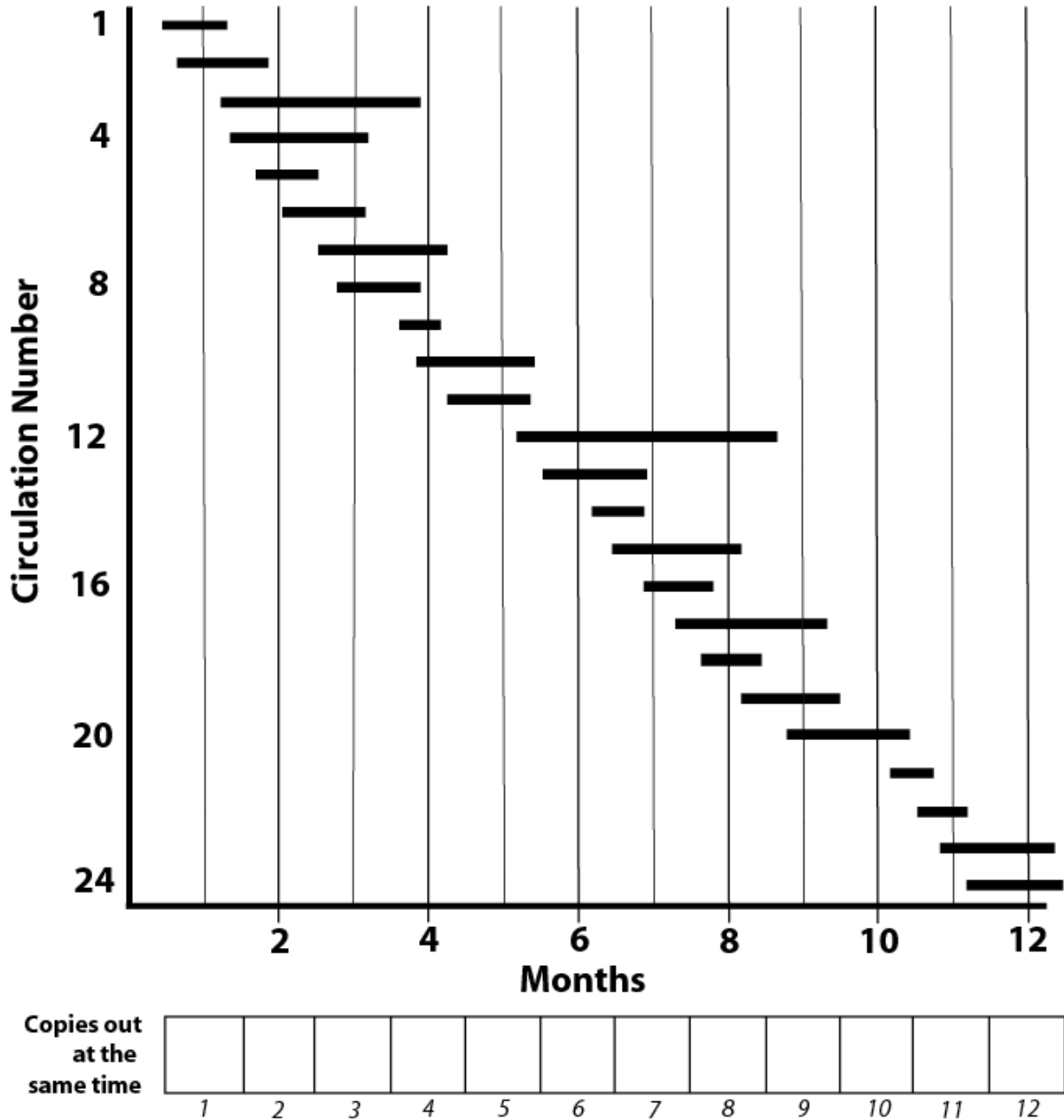
- Average:**
- ▶ **Items on loan** for a class of materials
 - ▶ **Number of duplicates** to maintain specified levels of availability
 - ▶ **Discard age** in a no-growth collection
 - ▶ **Days per loan** for a class of materials
 - ▶ Daily and annual **circulation** for a class of materials
 - ▶ **Circulation** for a permanent browsing display
 - ▶ **Random availability** for a class of materials
 - ▶ **Turnaround Time**
 - ▶ Interlibrary Loan
 - ▶ Reserve Requests
 - ▶ Acquisitions
 - ▶ Cataloging
 - ▶ Shelving

Based on:

Verhoeven, Stanley M. "The Expectation of Life Formula Applied to Collection Management." *Collection Management* 8, no. 2 (Summer 1986): 11-29.

2. The Tool Crib formula

Typical Circulation History
Four week loan period, 24 annual circulations



Average Number of Loans per month =

To find the average number of items out using the Expectation of Life formula:

$$\text{Average number of items on loan} = \text{Average length of loan} \times \text{Average number of items loaned per time unit}$$

$$\text{Average number of items on loan} = 1 \text{ month} \times 2 = 2$$

Or, using days rather than months as the time unit:

Average number of loans per day =

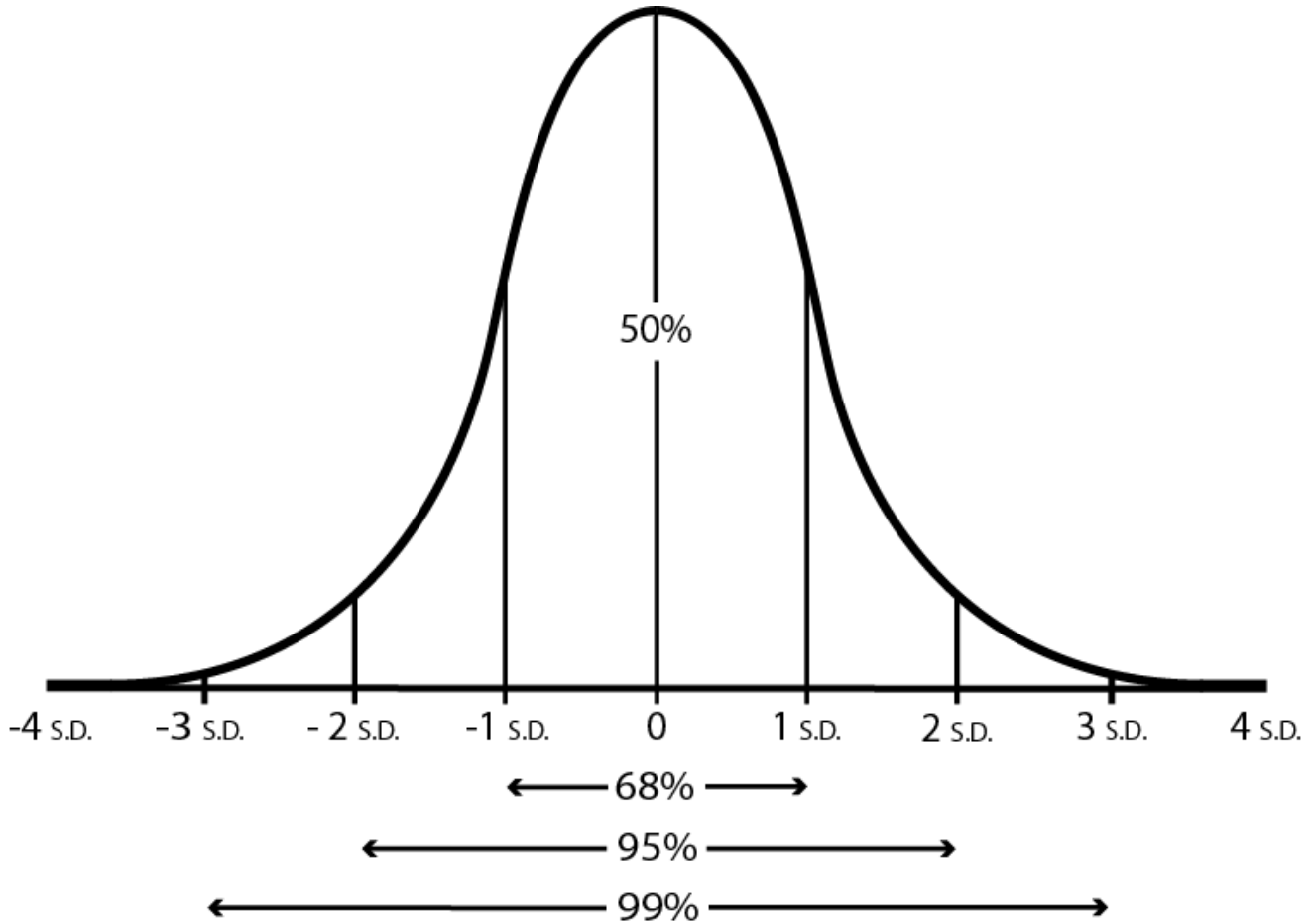
$$\text{Average number of items on loan} = 28 \text{ days} \times .066 = 1.8$$

The Expectation of Life formula yields the average number of items on loan, but looking at the circulation history we can see that often more items are on loan than the average. In fact, if we limit the number of copies to the average items on loan, we will anticipate only 50% of the demand.

The Tool Crib formula solves this dilemma by increasing the number of days in the formula to anticipate the maximum number of days at or below which an item will be out for specific levels of probability. The Standard Deviation (S.D.) is the usual measure of dispersion for a distribution, and for a normal distribution we can anticipate that a given percentage of instances will be at or below 1, 2, or 3 standard deviations from the mean. Specifically:

<i>For the number of loans equal to:</i>	<i>The loan lengths will be at or below:</i>
50%	Mean (average)
68%	Mean + 1 S.D.
95%	Mean + 2 S.D.
99%	Mean + 3 S.D.

The Normal Curve



Empirical observation indicates that the S.D. (Standard Deviation) for the typical length of loan in a public library is in the range of 10 days. Empirical observation also indicates that the mean length of loan is close to the standard loan period of a class of items. The following table is based on these observations plus the assumption that the number of days on loan are normally distributed.

Maximum expected days on loan by percentage of total loans:

Standard loan period =		1 week	2 weeks	3 weeks	4 weeks
Percentage of total loans at or below the expected days on loan	50%	7	14	21	28
	68%	17	24	31	38
	95%	27	34	41	48
	99%	37	47	51	58

3. The Duplication Formula

The complete duplication formula is derived from the tool crib model, which in turn is derived from the Expectation of Life formula. I have added a base constant (1) to the original tool crib model to promote variety at the shelf, encourage browsing, and allow for declining use over time.

$$\text{Number of copies} = 1 + \left(\text{Days in loan period} \times \frac{\text{Number of circulations}}{\text{Days in circulation life}} \right)$$

Number of copies	Total copies recommended for the collection (including current copies, if any).
Days in loan period	To satisfy 50% of the demand, use the number of days in the formal loan period for the material type (example: 2 week adult fiction loan period = 14 days). To satisfy increasing percentages of demand, use the table below.
Number of circulations	Total circulation count for all copies of the measured title in a known Circulation Life period.
Days in circulation life	Days the copies of the measured title have been active for circulation; days in sample period during which the number of circulations are totaled. The Duplication Tables use one year (365 days).

Demand Estimates

To satisfy **50%** of demand: use average length of loan period (as in formula)
68% of demand: add **10 days** to the Days in Loan Period
95% of demand: add **20 days**
99% of demand: add **30 days**

Based on:

Grant, Robert S. "Predicting the Need for Multiple Copies of Books." *Journal of Library Automation* 4, no. 2 (June 1971): 64-71.
 Leffler, William L. "A Statistical Method for Circulation Analysis." *College and Research Libraries* 25 (November 1964): 488-490.