

MODERN ALGEBRA AND DISCRETE STRUCTURES

Errata (as of April 1, 2005)

<u>Page</u>	<u>Line</u>	<u>Correction</u>
18	12	Replace “Proposition (1.2)” by “Proposition (1.1)”
33	14	Replace 1.5.b by “Can you construct a finite-state machine such that the simple connection relation is transitive and symmetric but not reflexive?”
39	–4	Replace \mathbf{Z} by \mathbf{Z}
45	Fig. 4.1	The state on the left should be labeled σ_0
48	2	Replace “ $\tau(\sigma_1) = 1$ ” by “ $\tau(\sigma_1, 1) = 1$ ”
48	9	Replace “ $\{\sigma_4\}$ ” by “ $\{\sigma_3\}$ ”
48	–11	Replace “and the only” by “one”
51	8	Replace “(4.6.1)” by “(4.7.1)”
61	–3	Replace “I.3.3” by “I.3.5”
69	7	In the matrix on the right, replace “ cc' ” by “ ca' ”
69	–11	In (3.5.2), replace “2” by “ k ” (in both places) and add the phrase “so that $\langle k \rangle$ does not contain 1 if $k > 1$ ”
76	1	Replace “group” by “nontrivial group”
109	–11	Replace “permuation” by “permutation”
110	11	Replace “least exponent” by “least positive exponent”
117	–6	Replace “ 4^2 ” by “ 2^4 ”
118	–17	In Definition (9.2), replace “ S ” by “ X ”
121	2	Replace “(9.6.2)” by “(9.7.2)”
134	2	Replace “VI.3.8” by “VI.3.9”
141	–6	Add the assumption that $1 \neq 0$ to the definition of a field
144	15	In 1.4, replace “ \mathbf{Z}_6 ” by “ \mathbf{Z}_6 ”
156	–5	In 3.5.c, add the assumption that φ is not identically zero and replace “no zero divisors” by “no zero divisors other than 0”
157	11	In 3.9.b, add the assumption that $\varphi^{-1}(J) \neq R$
161	–10	Replace “satsifying” by “satisfying”
165	16	Replace “sytem” by “system”
165	–8	Replace “cryptosystem” by “cryptosystem”
167	18	Replace the two sentences following “Now for the decryption.” by “Since e was chosen to be relatively prime to t , we have, by Proposition (2.6), that \bar{e} is a unit in \mathbf{Z}_t .”
177	17	The phrase “by Corollary (6.13)” should occur in the preceding sentence
189	4	Replace “finite field” by “characteristic two”
196	–1	Replace the second “ $(p^m)^{d-1}$ ” by “ $(p^m)^{d-2}$ ”
199	14	Replace “positive” by “nonnegative”
211	–16	Replace the sentence in parentheses by the clause “if we assume that only one error has occurred”

213	3	Replace “two errors” by “one error”
219	4	The last entry in the first row should be 0 (instead of 1) in the second matrix on this page and in the matrix G' on this page
223	15	The first entry in the last row of the matrix H' should be 0 (cf. the correction on p. 219)
236	4	Replace “gives the” by “gives an upper bound for the”
253	−7	Replace “Then that there” by “Then there”
258	9	Replace “ $X^2 - 1$ ” by “ $X^2 + 1$ ”
261	−2	Replace “has rank 7 and so defines the zero code” by “has rank 6 and defines the trivial code $\{0000000, 1111111\}$.”
263	8	Replace “Show that $f(X)$ is a codeword.” by “Then $X g(X)$ and $g(X) X^n - 1$.”
278	−7	Replace “ S ” by “ X ”
326	−3	We cannot choose v_2v_6 since that would create a cycle
337	21	Replace “ u_2 ” by “ u_1 ”
338	Theorem (4.19)	This is the Max-Flow Min-Cut Theorem
349	9	In 3.1.b, replace “0110011” by “011011”
349	11	In 3.2, one should stay in state σ_3 on an input of 0
357	8	Add the subsemigroup $\{f_1, f_3, f_4\}$ to the answer to Exercise 3.4
359	22	In 5.7, the subgroup $\{\epsilon, \alpha^2, \alpha\beta, \alpha^3\beta\}$ is another normal subgroup
369	9	In 5.3, replace “ φ ” by “ ϕ ”
377	16	Replace the hint for 3.1 by “Use Proposition (1.9) and Theorem (3.4).”
379	1	Remove the word “unique.”
379	−3	Should read: $S = \{x, v_1, v_2, v_3, v_4, v_5\}$. (Note that $v_1 \in S$ since $x, (x, v_3), v_3, (v_3, v_2), v_2, (v_2, v_1), v_1$ is an unsaturated semipath for this maximum flow.)